Iowa Asthma Surveillance Plan

Iowa Department of Public Health
Center for Health Statistics
Division of Administration

Iowa Asthma Control Program
Bureau of Health Promotion and Disabilities
Division of Health Promotion, Prevention and Addictive Behaviors

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Plan for Asthma Surveillance in Iowa

Background

Asthma: A Priority Public Health Problem for Surveillance

In the U.S., the prevalence of asthma, a chronic inflammatory airway disease of the lungs, has doubled since 1980. It is now the most common chronic disease of childhood and the fourth most common chronic disease of adults. Nearly five million children and ten million adults in the U.S. have asthma. Adults and children account for an estimated 100 million days of disability, 500,000 inpatient hospitalizations, and 134 million days of restricted activity each year. (Healthy People 2010)

In Iowa, about seven percent of the population (150,000 adults and 40,000 to 50,000 children) has asthma. Within the state, 50 to 60 deaths, about 12,000 inpatient hospitalizations, 40,000 to 50,000 emergency department visits, and 35,000 to 45,000 unscheduled office visits are due to asthma each year. The direct medical and indirect economic cost associated with asthma in Iowa each year is estimated at $150,000,0000. (*Asthma in Iowa: Surveillance Report 1995 - 2000*)

The burden asthma places on those with asthma, their families and the health care system, as seen in unnecessary hospitalizations, urgent care visits and lost days of work and school has grown along with the epidemic. Even so, much of that burden could be alleviated if established guidelines for asthma care and key environmental controls were adopted and followed.

In the last five years with the recognition that much of the growth in asthma-related morbidity and mortality is preventable, the institution of public health programs for asthma prevention and control, including the establishment of asthma surveillance systems has become a priority for the nation, Iowa and many Iowa counties.

National and State Asthma Surveillance Goals

Healthy People 2010, the nation's long range plan for the current decade for improving the health of people in the U.S., identifies respiratory diseases (asthma, COPD, and sleep apnea) as one of 28 priority areas for public health intervention and includes an objective to establish asthma surveillance systems in at least 25 states by the year 2010.

Healthy Iowans 2010, Iowa's long-range plan for improving the health of Iowans, includes asthma among 23 priority public health issues for the next ten years. One of the six asthma-specific goals in *Healthy Iowans* is to create an Iowa surveillance system for asthma by the year 2005.

Healthy People and *Healthy Iowans* also address in many non-asthma-specific goals and objectives the need to conduct surveillance for risk factors (e.g., tobacco use, obesity, physical activity, environmental quality, immunizations, and access to health care) common both to asthma and other priority chronic conditions.

Asthma in Iowa: The Iowa Plan for Improving the Health of Iowans with Asthma, a strategic plan for improving the health of Iowans with asthma, was adopted by the Iowa Asthma Task Force and the Iowa Department of Public Health (IDPH) in the spring of 2003 and addresses in more detail than does *Healthy Iowans* what the state's asthma surveillance system should encompass. This plan calls for surveillance of both health outcomes related to asthma (asthma prevalence, deaths, hospitalizations, etc.) and of risk factors for developing asthma (use of preventive services, exposure to tobacco smoke, allergens, etc.).

Counties Identify Asthma Intervention and Surveillance as a Priority

All counties are required by the IDPH to monitor pediatric asthma outcome indicators as part of their long-range community health planning process. Approximately 20 of 99 Iowa's counties (20 percent) have adopted local health plans identifying asthma as an important health problem for local intervention and surveillance.

Preliminary Surveillance Report Released

Asthma in Iowa: A Surveillance Report for 1995-2000, a preliminary epidemiologic report of the asthma problem in Iowa, was released at the same time as the asthma strategic plan, *Asthma in Iowa: The Plan for Improving the Health of Iowans with Asthma* in the Spring to 2003. The strategic plan and surveillance report serve as companion documents to this plan for surveillance. The preliminary surveillance report will be updated and expanded upon as described herein.

All three documents were produced through the Iowa Asthma Control Program and the Center for Health Statistics of the IDPH and are funded through a grant from the Air Quality and Respiratory Health Branch, National Center for Environmental Health of the Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services.

Public Health Surveillance Defined

CDC defines public health surveillance as "…the ongoing, systematic collection, analysis, and interpretation of health-related data essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of these data to those responsible for prevention and control." (CDC, 2001)

Overview of the Attributes and Components of an Asthma Surveillance System

CDC's *Updated Guidelines for Evaluating Public Health Surveillance Systems* lists these attributes as desirable in asthma and other public health surveillance systems:

- Simplicity
- Flexibility
- Data quality
- Acceptability
- Sensitivity (ability to detect a health event)
- Predictive value positive (proportion of cases counted that actually have the health event or factor)
- Representativeness
- Timeliness
- Stability
- Useful to intended audience and public

Iowa's asthma surveillance system will be designed and periodically evaluated by the surveillance committee of the Iowa Asthma Coalition and by the IDPH based on the criteria listed above and based on progress made toward completing the work plan provided later in this plan.

Asthma Defined: The Iowa Strategic Plan, NHLBI and CSTE Definitions

Three definitions of asthma, each written for different audiences and uses follow: that found in Iowa's strategic asthma control plan, *The Plan for Improving the Health of Iowans with Asthma*; that found in *Guidelines for the Diagnosis and Management of Asthma* of the National Heart, Lung and Blood Institute (NHLBI); and, that found in the 1998 Conference of State and Territorial Epidemiologists (CSTE) position statement *Asthma Surveillance and Case Definition*.

Definition from *Asthma in Iowa: The Plan for Improving the Health of Iowan's with Asthma*

Written in layman's terms for use by the general public, Iowa's strategic plan for improving the health of Iowans with asthma, defines asthma as:

> …a chronic inflammatory disease of the lungs that can be controlled with proper management. It results in reduced airflow, with symptoms, including: rapid and labored breathing; shortness of breath; wheezing; coughing; and tightness in the chest.

National Heart, Lung and Blood Institute Definition

For purposes of developing its standards of clinical care, the National Heart, Lung and Blood Institute (NHLBI) defines asthma as:

> …a chronic inflammatory disorder of the airways in which many cells and cellular elements play a role, in particular, mast cells, eosinophils, T lymphoctyes, macrophages, neutrophils, and epithelial cells. In susceptible individuals, chronic inflammation causes recurrent episodes of wheezing, breathlessness, chest tightness and coughing, particularly at night or in the early morning." These episodes are usually associated with widespread but variable airflow obstruction that is often reversible either spontaneously or with treatment. The inflammation also causes an increase in bronchial hyperresponsiveness to a variety of stimuli. (NHLBI, 1997)

In its *Guidelines for the Diagnosis and Management of Asthma*, the NHLBI notes that the diagnosis of asthma is based on patient: symptoms/medical history, physical exam, and tests of pulmonary function (spirometry), with the latter being needed to establish a confirmed diagnosis. Using these three elements, the *Guidelines* provide a four-step classification scheme for asthma severity in which asthma is categorized as mild intermittent, mild persistent, moderate persistent or severe persistent.

The *Guidelines* note that asthma also is sometimes further classified into allergic or atopic (extrinsic) and nonallergic or nonatopic (intrinsic). Most cases of asthma are extrinsic, but cases may exhibit characteristics of both.

CDC/CSTE Working Surveillance Definitions of Asthma Outcomes and Risk Factors:

In a 1998 position statement on asthma surveillance, the CSTE notes that despite the existence of the NHLBI definition there is not yet complete scientific consensus on what constitutes a clinical definition of asthma and that "…A specific surveillance case definition that can be applied to data collected from mortality, hospital discharge databases, survey-self-reported and clinical and laboratory data (should be developed which) provides states with a uniform approach to describing different aspects of the burden of asthma." (CSTE, 1998)

To that end, the CSTE adopted, with the support of the Centers for Environmental Health, CDC, asthma surveillance case definitions for each of these four classes of surveillance data:

- clinical/laboratory;
- prevalence;
- hospital discharge; and,
- mortality data.

The CSTE has not adopted a case definition for asthma for health insurance databases.

Based on the strength and quality of the data available, CSTE subcategorizes cases within each of these four classes as:

- confirmed;
- probable; or,
- possible asthma.

Only one of the four classes of data, clinical/laboratory, includes a case definition in the confirmed category, since confirmed cases require supportive laboratory findings which normally are not included in databases of hospital discharge, mortality, or prevalence data.[1]

In addition to these surveillance cases definitions, the CSTE and the Center for Chronic Disease Prevention and Health Promotion, CDC have defined 73 important chronic disease surveillance 'indicators.' Some 21 of these indicators are useful for asthma surveillance, measuring both asthma outcomes (e.g., mortality from asthma) and risk factors (e.g., smoking prevalence, flu vaccine status) for asthma. (See Appendix G for the CSTE surveillance case definitions and Appendix A for a list of the 21 CSTE chronic disease indicators useful in asthma surveillance).

As the CDC/CSTE asthma surveillance case definitions and indicators in large measure were developed with existing databases in mind, they allow population-based counts and rates to be calculated and compared across states and the nation. The CSTE/CDC efforts to standardize surveillance definitions of health outcomes and risk factors have resulted in their also shaping the questions being asked by many of those existing data sources.

For most of the CSTE's case definitions and indicators, data are available, although limitations may apply (e.g., statewide but not county-specific data are available). For some, data are not available.

<u>Asthma Surveillance Outcomes and Risk Factors Defined</u>

Public health surveillance measures used to assess chronic diseases are usually classified as either disease:

- outcomes (the burden of asthma - its frequency, severity, disparity in distribution, attendant use of health care services, including hospitalizations, costs, etc.); or,
- risk factors (those elements that predispose one to developing asthma or experiencing recurrent episodes).

[1] CSTE notes that its clinical/laboratory case definitions of asthma. are to be used as adjunct tools "…to assist those who wish to include a validation component in their asthma surveillance. It is also useful for cluster investigations and as a basis for discussion with health care providers." CSTE does not endorse use of its clinical case definitions to establish physician reporting of asthma or the establishment of asthma registries or their general use in public health surveillance. (CSTE, 1998)

Risk factors are usually further classified as:

- personal (biological/health factors, behavioral, psycho-social, financial, demographic);
- physical environment (ambient air, home, school and work environments); and,
- institutional/social systems (health care, educational, public health system, economic, governmental systems-programs, policies, services, resources).

Iowa Asthma Surveillance System's Purpose, Goals and Objectives

Purpose/Goal

The goal of the Iowa asthma surveillance system is provide to those who can make a difference in asthma prevention and control, data that allows them to lessen cost effectively the burden of asthma in Iowa.

Those who can make a difference in lessening the burden and to whom asthma surveillance information will be aimed include: state and local private and public policy makers, staff of funding agencies, local and state public health practitioners, program administrators, health care practitioners, persons with asthma, their families, the general public and the media.

Objectives

Objectives of the asthma surveillance system are to provide data to:

- assess and monitor health outcomes and the burden of asthma (frequency, severity, socio-demographic variability, and costs over time);
- assess and monitor common risk factors/triggers which are closely linked to asthma outcomes (personal, health care, social systems and environmental factors);
- evaluate and plan programs, health care practices, and policies;
- define reasonable priorities for action;
- quantify the burden of asthma in sub-populations to assist in resource allocation; and,
- stimulate potential research hypotheses.

Iowa Code and Administrative Code Sections Pertaining to Reporting of Data of Potential Use in Asthma Surveillance

Occupational Asthma Reportable in Iowa

While in the U.S. and Iowa, laws mandating the reporting of key infectious diseases have been in place for more than a century, surveillance of non-infectious chronic diseases has come onto its own only in the past several decades. This is the case in part because most chronic diseases have surpassed infectious diseases as leading causes of death and disability only in this century, but, also because surveillance of chronic diseases based solely on identification of incident cases is expensive and inadequate due to their high frequency, long latency period, long duration, multi-etiologic origin and under diagnosis.

In Iowa for the past fifteen years, a number of non-infectious conditions have been included among those that are reportable to the IDPH, although no system has been established to collect case reports of these noninfectious conditions routinely, with the exception of cancer and birth defects. Those non-infectious conditions that are reportable to the IDPH and of potential interest to Iowa's asthma surveillance system include: acute or chronic respiratory conditions due to fumes, vapors or dusts, hypersensitivity pneumonitis, silo fillers disease, *occupational asthma,* and occupational bronchitis and respiratory hypersensitivity reactions. (Public Health[641], *Iowa Administrative Code*, implementing Chapter 139A, Communicable and Infectious Diseases and Poisonings of the *Code of Iowa*)

Indicator C2.1 listed in the work plan addresses collecting occupational asthma case reports under these code provisions.

Iowa Administrative Code on Reporting of Inpatient, Outpatient and Ambulatory Care Visits

Under the *Code of Iowa*, Sections 135.40-135.42 and *Iowa Administrative Code*, Public Health[641], Chapter 177, Health Data, the IDPH is authorized to collect information from other state agencies, the Iowa Hospital Association (IHA) and others for the purpose of providing health information to health care providers, the general public and others. Under the Chapter 177 of the *Administrative Code*, hospitals are specifically required to report inpatient, outpatient and ambulatory care information to the Iowa Hospital Association that in turn is to provide these data to the IDPH. The IDPH has received data from the IHA from its State Inpatient Database for the years 1994 forward. In 2000-2001 on a limited bases, the IHA began to collect data on hospital outpatient visits. In 2003, the IDPH should receive an estimated 800,000 outpatient records.

Iowa Code and Administrative Code on Reporting Deaths

Under the *Code of Iowa*, Chapter 144, Vital Records and *Iowa Administrative Code,* Public Health[641], Chapter 96, Vital Records, the IDPH is authorized to collect from local registrars vital records, including death certificates, and maintain those records as part of a statewide vital records database. Death are on file with the IDPH from 1904 forward but available electronically only from 1958 forward.

Iowa Code and Administrative Code on Workers' Compensation Claims Reporting and on Reporting of Other Data of Importance to Asthma Surveillance

Many sections of Chapters 17A, 85, 85A, 85B, 86 and 87 of the *Code of Iowa* address reporting of work-related injuries to the Iowa Workers' Compensation Division of the Iowa Department of Workforce Development. In implementing these sections of the *Code*, Workers' Compensation[876], Chapters 3, 9, and 11 of the *Iowa Administrative Code* mandate reporting to the Iowa's Workers' Compensation Division of work-related injuries and illnesses that result in a claim being paid and for which an employee was off work for three days or more, or, which resulted in permanent disability or death.

While work-related asthma is not specifically identified as a reportable illness, it is reportable to the state under the category of other 'respiratory disorders'.

Other sections of the *Code of Iowa* and *Iowa Administrative Code* covering the State Trauma Registry and reporting of air quality data are described in Appendix E.

IDPH Asthma Surveillance System Administered through the Center for Health Statistics

The Iowa asthma surveillance system is being administered through the Center for Health Statistics, Division of Administration of the IDPH.

Implementation of the asthma surveillance work plan found in this document is contingent on continued federal funding of the Iowa Asthma Control Program by CDC. Funds received by

the program allow the IDPH to: employ a full-time asthma epidemiologist, who will implement or oversee implementation of the work plan contained herein; purchase asthma-related questions to be added to the core Iowa Behavioral Risk Factor Surveillance System (BRFSS) annual survey; and, on a limited basis, contract for the collection and analyses of data from several other databases. State funding for asthma surveillance activities is unlikely in the next few years as Iowa, along with most states, is facing ongoing budget shortfalls.

Databases to be Used by the Asthma Surveillance System

Seven broad types of data systems that commonly are used for chronic and infectious disease surveillance are listed below along with some of the specific Iowa databases falling into those types of data systems:

- notifiable diseases (occupational asthma and other occupational respiratory diseases now reportable to the IDPH under Iowa administrative code);
- vital statistics (deaths certificates of Iowa residents listing cause of death as asthma or asthma-like conditions);
- sentinel surveillance systems (no operational sentinel system now collects data on asthma in Iowa. Establishing such a system will be explored. See work plan.);
- disease registries (State Trauma Registry — ambulance runs that are asthma-related. This database will be available by 2005);
- health surveys (Iowa adult and youth behavioral risk factor surveillance databases, National Asthma Survey, etc.)
- administrative data systems (e.g., Iowa State Inpatient Database (SID); and,
- census data (Iowa data from U.S. Bureau of the Census).

See work plan and Appendices C through E for additional information about these and other databases that are to be used or to be explored for use by the asthma surveillance system in Iowa.

Iowa Populations to be Surveilled

For the most part, cases of asthma to be surveilled will be those for which data are already collected in existing databases. Exceptions are described in the work plan that follows. The work plan proposes that additional asthma data be collected by the Iowa Behavioral Risk Factor Surveillance System (BRFSS), Iowa Youth Risk Behavioral System (IYRBS) and the Iowa Youth Tobacco Survey (IYTS) and that a sentinel system for collecting occupational asthma be explored. (See work plan and Appendices C through E.)

Integration with Other Public Health Surveillance Efforts in Iowa

Besides seeking to establish a surveillance system for asthma, the IDPH has also begun, with CDC funding, to conduct limited surveillance efforts for other chronic illnesses, including arthritis and diabetes. Staff for all three disease surveillance efforts are based in the Center

for Health Statistics (CHS) of the IDPH, allowing for routine collaboration on requests for data, including Medicaid data, analyses of data, and formatting and content of reports.

The CHS also houses the Iowa BRFSS program and routinely disseminates death and other vital statistics for the IDPH's Bureau of Vital Records, whose director is also the director of the CHS. Collaborations between all center staff working in chronic disease surveillance and vital records will continue and grow in future years.

The Iowa asthma surveillance system will rely upon and work closely with lead staff for the Iowa Youth Tobacco Survey (housed in the Division of Tobacco Use, Prevention and Control, IDPH), the Iowa Youth Risk Behavior Survey (housed in the Iowa Department of Education), the Iowa Youth Survey (housed jointly within the Division of Health Promotion, Prevention, and Addictive Behaviors, IDPH and the Iowa Department of Justice) and the Iowa Trauma Registry (housed in the Bureau of Emergency Medical Services, IDPH) through regular communications with the lead staff for these databases and through each having a representative on the surveillance committee of the Iowa Asthma Coalition.

Work Plan and Activities to Implement the Goals and Objectives of the Iowa Surveillance System for Asthma

The Iowa asthma surveillance system will accomplish its objectives through analyzing data as described in the work plan. The work plan lists more than 90 asthma outcome and risk factor indicators. CSTE surveillance case definitions used in these indicators are those adopted by CSTE and described earlier.

The indicators in the work plan were chosen for a number of reasons. Some are taken from among the CSTE-adopted chronic disease indicators. Others were chosen because they are readily measurable since they are based on variables currently being collected (e.g., the Iowa BRFSS collects information on urgent care visits by asthmatic adults and the Iowa State Inpatient Database includes information on all inpatient asthma-related hospitalizations). They may also be included because they are key to measuring progress toward accomplishing objectives laid out in *Asthma in Iowa: The Iowa Plan for Improving the Health of Iowans with Asthma*, Iowa's strategic plan for asthma, or in *Healthy Iowans 2010*.

(Appendix H notes when an indicator measures attainment of goals and objectives of Iowa's strategic plan for asthma, of *Healthy Iowans 2010, or Healthy People 2010.*

While the work plan that follows describes how the IDPH through the Iowa asthma surveillance system should routinely collect, analyze and publish epidemiologic information on asthma, in most cases implementation of the plan will depend on continued funding of the surveillance system. Some of the proposed analyses are proposed to be completed, in part, by agencies other than the IDPH (e.g, University of Iowa, CDC).

In the next five to seven years, CDC anticipates collecting state-level data, including Iowa-specific data, through the National Asthma Survey (NAS). As these Iowa-level data are collected, additional indicators reflective of the new data l need to be added to the work plan.

Asthma Surveillance System Evaluation

On a quarterly and annual bases, the asthma surveillance system will be evaluated through:

- review by Iowa Asthma Control Program staff and Center for Health Statistics staff of work completed compared to work proposed to be completed in the work plan
- completion by asthma epidemiologist of semi-annual reports to CDC describing all work completed and reasons for delays in completion of work; and,
- establishment of an active surveillance committee of the Iowa Asthma Coalition and their quarterly review of all asthma surveillance activities conducted by the IDPH.

Iowa Indicator (Analyses of all indicators to be completed by IDPH unless otherwise noted)		Yrs Indicator Calculated, Disseminated							Iowa Data to be Collected: When, By Whom			
		Actual		Proposed					Yrs Collected (Projected)	Agencies Responsible	Database	Data Collection Issues
		02	03	04	05	06	07	08				
Outcomes												
Health												
Prevalence												
Adults												
A1.1	Ever had asthma	X	X	X		X		X	1999+	IDPH, CDC	BRFSS	National BRFSS to continue to ask *core* asthma questions
A1.2	Now have asthma	X	X	X		X		X				
A1.3	Had asthma attack in past 12 months.		X	X		X		X	2001+	IDPH	BRFSS	IA BRFSS to continue to ask asthma *module* questions
Children and Youth												
			X	X	X		X		2001+	IDPH	BRFSS	IA BRFSS to continue to ask these 3 questions – per childhood asthma *module* and state added questions.
A2.1	Ever had asthma				X		X		(2005, '07, '09, etc.)	IA Dept of Ed. (IDOE)	IYRBS	IDOE to be asked to add CDC asthma module questions to YRBS (A2.2 not a YRBS modular question, A2.1, A2.3 are)*
A2.2	Now has asthma				X		X		(2004+) (2004+)	IDPH IDPH	IYTS, IYS	IDPH would need to add these asthma questions to IYTS and possibly to IYS. *
A2.3	Had asthma attack in past 12 months?				X				2003 only	NCHS, CDC	NSCH	NCHS asks all three questions. CDC has not scheduled a repeat of this childhood 2003 survey, data available in late 2004.
Symptoms												
Adults												

Iowa Indicator (Analyses of all indicators to be completed by IDPH unless otherwise noted)		Yrs Indicator Calculated, Disseminated							Iowa Data to be Collected: When, By Whom			
		Actual		Proposed					Yrs Collected (Projected)	Agencies Responsible	Database	Data Collection Issues
		02	03	04	05	06	07	08				
A3.1	Days w/difficulty sleeping in past 30 days		X	X	X		X		2001+	IDPH	BRFSS	IA BRFSS to continue to ask asthma *module* questions
A3.2	Days w/symptoms in past 30 days		X	X	X		X		2001+			
Children and Youth												
A4.1	Days w/difficulty sleeping in past 30 days				X		X		(2005, '07, '09 etc…)	IDOE	YRBS	IDOE would need to add to this question to YRBS*
A4.2	Days w/symptoms in past 30 days				X		X		(2004+)	IDPH	IYTS, IYS	IDPH would need to add to IYTS and possibly IYTS. *
A5	Reserved											
A6.1	Current asthma severity				X		X		2003 only	CDC, NCHS	NSCH	NCHS, CDC has no plans to continue NSCH beyond 2003
A6.2	Asthma-related health difficulties				X		X					
A6.3	Asthma burden on family				X		X					
Disability												
Adults												
A7.1	Disability days in past 12 months		X	X	X		X		2001+	IDPH	BRFSS	IA BRFSS to continue to ask asthma *module* questions
Children and Youth												
A8.1	Disability days in past 12 months				X		X		(2005, '07, '09 etc.) (2004+)	IDOE IDPH	YRBS IYTS, IYS	IDOE would need to add this question to YRBS.* IDPH would need to add to IYTS and possibly to IYS.*
A9	Reserved											
Mortality												
A10.1	Mortality from asthma	X			X		X		1904+	IDPH	Death Cert.	None
A10.2	Mortality with asthma	X			X		X					

Iowa Indicator (Analyses of all indicators to be completed by IDPH unless otherwise noted)		Yrs Indicator Calculated, Disseminated							Iowa Data to be Collected: When, By Whom			
		Actual		Proposed					Yrs Collected (Projected)	Agencies Responsible	Database	Data Collection Issues
		02	03	04	05	06	07	08				
Services Used												
Medications												
Adults												
B1.1	# days took any Rx asthma medications in past 30 days		X		X		X		2001+	IDPH	BRFSS	IA BRFSS to continue to ask adult asthma *module* questions
B1.2	Ever any Rx for asthma in past 12 months			X		X		X	2003+	IDPH	BRFSS	IA BRFSS to continue to ask adult asthma *state-added* questions
B1.3	# days took Rx rescue medication in past 30 days			X		X		X	2003+	IDPH	BRFSS	See B1.2
B1.4	Ever took Rx rescue medication in past 12 months			X		X		X	2003+	IDPH	BRFSS	See B1.2
B1.5	# days took Rx maintenance medications in past 30 days			X		X		X	2003+	IDPH	BRFSS	See B1.2
B1.6	Ever took Rx maintenance medications in past 12 months			X		X		X	2003+	IDPH	BRFSS	See B1.2
Children and Youth												
B2.1	# days took any Rx asthma medications in past 30 days				X		X		(2005, '07, '09, etc…) (2004+)	IDOE IDPH	YRBS IYTS, IYS	IDOE would need to add this question to YRBS.* IDPH would need to add to IYTS and possibly to IYS.*
B2.2	Ever took any Rx asthma medications in past 12 months											
B2.3	# days took Rx rescue medications past 30 days				X		X		(2004+)	See B2.1	See B2.1	See B2.1
B2.4	# days Rx rescue medications in past 12 months											
B2.5	# Days took maintenance meds past 30 days				X		X		(2004+)	See B2.1	See B2.1	See B2.1
B2.6	Ever took maintenance med past 12 months											
B2.7	Ever used prescription inhaler in past 3 months				X		X		(2004+)	See B2.1	See B2.1	See B2.1

Iowa Indicator (Analyses of all indicators to be completed by IDPH unless otherwise noted)		Yrs Indicator Calculated, Disseminated							Iowa Data to be Collected: When, By Whom			
		Actual		Proposed					Yrs Collected (Projected)	Agencies Responsible	Database	Data Collection Issues
		02	03	04	05	06	07	08				
B2.8	Ever took prescription steroid in past 12 months/calendar year											
B2.9	Ever took over-the-counter asthma medications in past 12 months				X		X		(2004+)	See B2.1	See B2.1	See B2.1
Medicaid Subscribers												
B3.1	# days took any Rx asthma medications in past 30 days			X		X		X	1999+	IDPH, U of I, IDHS, USDHHS, CMS	Medicaid	Complicated database to clean, analyze
B3.2	Ever took any Rx asthma medications past 12 months			X		X		X				
B3.3	# days took Rx rescue medications in past 30 days			X		X		X	1999+	IDPH, U of I, IDHS, USDHHS, CMS	Medicaid	Complicated database to clean, analyze
B3.4	# days Rx rescue medication in past 12 months			X		X		X				
B3.5	# days took maintenance medications in past 30 days			X		X		X				
B3.6	Ever took maintenance medications in past 12 months			X		X		X				
B3.7	Ever took Rx inhaler in past 3 months			X		X		X				
B3.8	Ever took Rx steroid in past 12 months/calendar year			X		X		X				
Routine Care												
Adults												
B5.1	Visits for routine asthma check-up in past 12 months		X	X	X		X		2001+	IDPH	BRFSS	IA BRFSS to continue to ask asthma *module* questions
B5.2	Has asthma action plan				X	X		X	2004+	IDPH	BRFSS	IA BRFSS to continue to ask as adult *state-added* asthma questions

Iowa Indicator (Analyses of all indicators to be completed by IDPH unless otherwise noted)		Yrs Indicator Calculated, Disseminated							Iowa Data to be Collected: When, By Whom			
		Actual		Proposed					Yrs Collected (Projected)	Agencies Responsible	Database	Data Collection Issues
		02	03	04	05	06	07	08				
Children and Youth												
B6.1	Visits for routine asthma check-up past 12 months				X		X		(2005, '07, '09, etc…) (2004+)	IDOE IDPH	YRBS IYTS, IYS	IDOE would need to add this question to YRBS.* IDPH would need to add to IYTS and possibly to IYS.*
B6.2	Has asthma action plan				X		X		(2004+)	IDPH	BRFSS IYTS, IYS	IA BRFSS added as childhood *state-added* asthma questions in 2004 IDPH may add to IYTS and possibly to IYS.*
Adults: Vaccinations												
B7.1	Vaccinated flu in past 12 months		X		X		X		'87, ' 93, '95, '97, '99+	CDC, IDPH	BRFSS	National BRFSS to continue ask core and modular immunization questions
B7.2	Ever vaccinated pneumococcal pneumonia		X		X		X		'93, '95, '97, '99+			
Children and Youth: Vaccinations												
A8.1	Vaccinated flu in past 12 months								Not collected			
A8.2	Ever vaccinated pneumococcal pneumonia			X		X		X	2000+	IDPH, NCHS	NIS	NIS does not collect information on child's asthma status
Urgent Care/Emergency Dept. Visits												
Adults												
B9.1	Ever visits for urgent/ED for asthma care in past 12 months		X	X	X		X		2001+	IDPH	BRFSS	IA BRFSS to continue to ask asthma *module* question, ED and urgent care indicators are asked as separate questions in the adult asthma module.
B9.2	# visits to provider clinic for urgent asthma/ED care in past 12 months		X	X	X		X					

Iowa Indicator (Analyses of all indicators to be completed by IDPH unless otherwise noted)		Yrs Indicator Calculated, Disseminated							Iowa Data to be Collected: When, By Whom			
		Actual		Proposed					Yrs Collected (Projected)	Agencies Responsible	Database	Data Collection Issues
		02	03	04	05	06	07	08				
Children and Youth												
B10.1	Ever visits for urgent/ED care for asthma in past 12 months.								2003+ (2005, '07, '09, etc…)	IDPH IDOE	BRFSS YRBS	IA BRFSS to continue to ask childhood state-added asthma questions; IDOE would need to add this question to YRBS.*
B10.2	Visits to provider clinic for urgent asthma care in past 12 months								(2004+)	IDPH	IYTS, IYS	IDPH may add to IYTS and possibly to IYS.*
Medicaid Subscribers												
B11.1	Ever visits for urgent/ED asthma care in past 12 months			X		X		X	1999+	IDPH, U of I, IDHS, USDHHS, CMS	Medicaid	Complicated database to analyze, consensus surveillance case definitions not agreed upon
B11.2	# Visits to provider clinic for urgent/ED asthma care in past 12 months			X		X		X				
B11.3	Visits to provider clinic/ED/hospital for urgent asthma past 12 months that were followed up by maintenance visit w/in 30 days			X		X		X	1999+	IDPH, U of I, IDHS, USDHHS, CMS	Medicaid	See B11.1
B12	Reserved											
Services Used												
Hospitalizations: Asthma												
B13.1	Inpatient asthma admits past 12 months - adults/children	X			X		X		1994+	IDPH	SID	--
B13.2	Average length of stay asthma admit "		X		X		X					
B13.3	Average charges for asthma stay		X		X		X					
B14	Reserved											

Iowa Indicator (Analyses of all indicators to be completed by IDPH unless otherwise noted)		Yrs Indicator Calculated, Disseminated							Iowa Data to be Collected: When, By Whom			
		Actual		Proposed					Yrs Collected (Projected)	Agencies Responsible	Database	Data Collection Issues
		02	03	04	05	06	07	08				
Medicaid Subscribers												
B15.1	Inpatient asthma admits past 12 months - Medicaid subscribers	X		X		X		X	1999 1999+	IDHS CMS	IDHS Medicaid, Consultec, USDHHS, CMS	See B11.1
B15.2	Average length of stay asthma admit			X		X		X				
B15.3	Average charges for asthma stay			X		X		X				
B16	Reserved											
Hospitalizations: Conditions for which asthma may be misdiagnosed												
B17.1	Inpatient admits for COPD in past 12 months-adults >35 yrs		X	X		X			1994+	IDPH	SID	--
Children and Youth												
B18.1	Inpatient admits for acute bronchitis, bronchiolitis past 12 months - children <12 yrs		X		X		X		1994+	IDPH	SID	--
B18.2	Inpatient admits for chronic bronchitis, in past 12 months - children <12 yrs		X		X		X					
B18.3	Inpatient admits for chronic bronchitis, in past 12 months - children <12 yrs		X		X		X					
Hospitalizations: Work-Related Asthma												
B19.1	Inpatient asthma admits past 12 months - charges to workers comp			X	X		X		1994+	IDPH	SID	--
B19.2	Average length of stay for asthma admissions w/ worker comp claim			X	X		X					
B19.3	Average charges for asthma stay			X	X		X					
B19.4	Inpatient admits past 12 months other respiratory conditions - workers compensation			X	X		X					

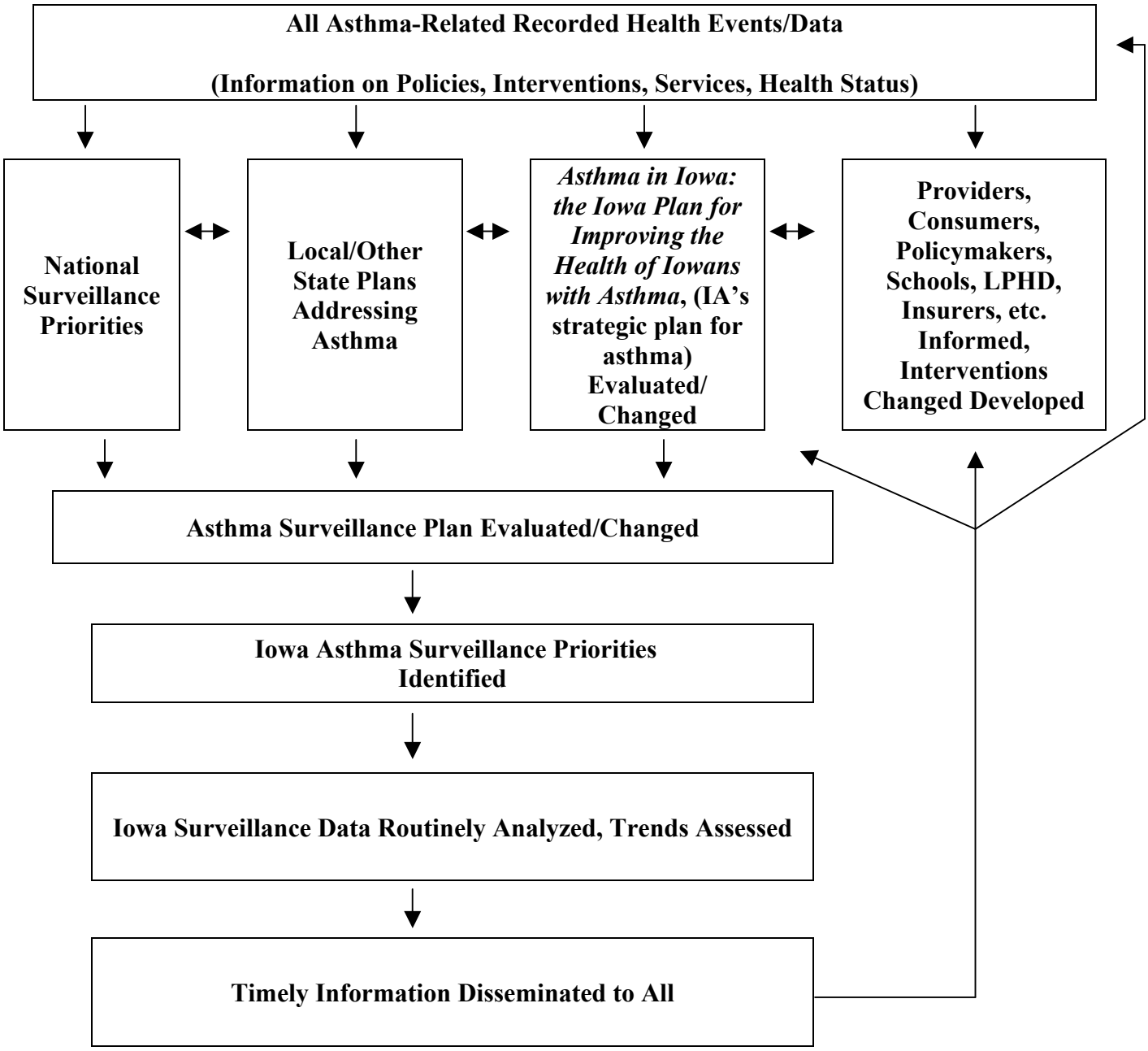
Iowa Indicator (Analyses of all indicators to be completed by IDPH unless otherwise noted)			Yrs Indicator Calculated, Disseminated							Iowa Data to be Collected: When, By Whom			
			Actual		Proposed					Yrs Collected (Projected)	Agencies Responsible	Database	Data Collection Issues
			02	03	04	05	06	07	08				
Work-Related Asthma Claims													
C1.1		Worker comp claims for work-related asthma in past 12 months			X		X		X	1998-2001 partial, July 2001+ complete	Dept Work-Force Dev.	Workers Comp.	Asthma is not specifically listed as reportable, just other respiratory disorders
C1.2		Worker comp claims for other work-respiratory illness in past 12 months			X		X		X				
C2.1		Reports to IDPH of work-related asthma in past 12 months					X	X	X	(2005+)	IDPH-CADE, CHS	Reportable Illnesses	Not now collected
C3.1		Prevalence of work-related asthma in past 12 months					X	X	X	(2004+)	IDPH	BRFSS	Continued collection will depend on funding
Risk Factors for Asthma													
Physical Environment													
D1.1		Local civil divisions with outdoor open burning bans			X		X		X	(2004, periodically)	IDPH, IDNR	IDPH Survey	To be collected by IA Asthma Program
Personal Risk Factors													
Socioeconomic status													
Adults													
E1.1		Any current health insurance coverage	X		X	X		X		1991+	IDPH	BRFSS	IA BRFSS to continue to ask *core* demographic questions
E1.2		Annual family income	X		X	X		X		1984+			
E1.3		Educational attainment	X		X	X		X		1984+			
E1.4		Ethnicity/Race	X		X	X		X		1984+			
Children and Youth													
E2.1		Any current health insurance coverage				X		X		(2004+) (2004+)	IDOE IDPH	YRBS IYTS, IYS	IDOE may add to this question to YRBS.* IDPH may add asthma questions to IYTS and possibly to IYS.*
E2.2		Annual family income				X		X					

Iowa Indicator (Analyses of all indicators to be completed by IDPH unless otherwise noted)		Yrs Indicator Calculated, Disseminated							Iowa Data to be Collected: When, By Whom			
		Actual		Proposed					Yrs Collected (Projected)	Agencies Responsible	Database	Data Collection Issues
		02	03	04	05	06	07	08				
E2.3	Educational attainment				X		X					
E2.4	Ethnicity/Race				X		X					
Tobacco smoke exposure												
Adults												
E3.1	Current cigarette smoking	X	X		X		X		1990+	IDPH	BRFSS	IA BRFSS to continue to ask *core* smoking questions
E3.2	Exposure second-hand smoke in home	X	X		X		X		1998+	IDPH, CDC	BRFSS	Iowa collected as state added question in 1999 and from 2001+ per national tobacco module.
Children and Youth												
E4.1	Current cigarette smoking-				X		X		(2001+)	IDOE.	YRBS	IDOE now includes in YRBS.
E4.2	Exposure second-hand smoke in home				X		X		(2004+)	IDPH	IYTS, IYS	IDPH to add second-hand smoke questions to IYTS and possibly to IYS.*
Diet/Exercise/Weight												
Adults												
E5.1	Currently overweight/obese	X			X		X		1985+	IDPH	BRFSS	IA BRFSS to continue to ask *core* height/weight questions
E5.2	5 fruits/vegetables per day	X			X		X		1994, '96, '98, 00, 02	IDPH	BRFSS	IA BRFSS to continue to ask *core* fruit/vegetable questions
E5.3	Routine exercise in past month	X			X		X		1985-92, '94, '96, '98, '00, '01-'02	IDPH	BRFSS	IA BRFSS to continue to ask *core* exercise questions (asked every other year)

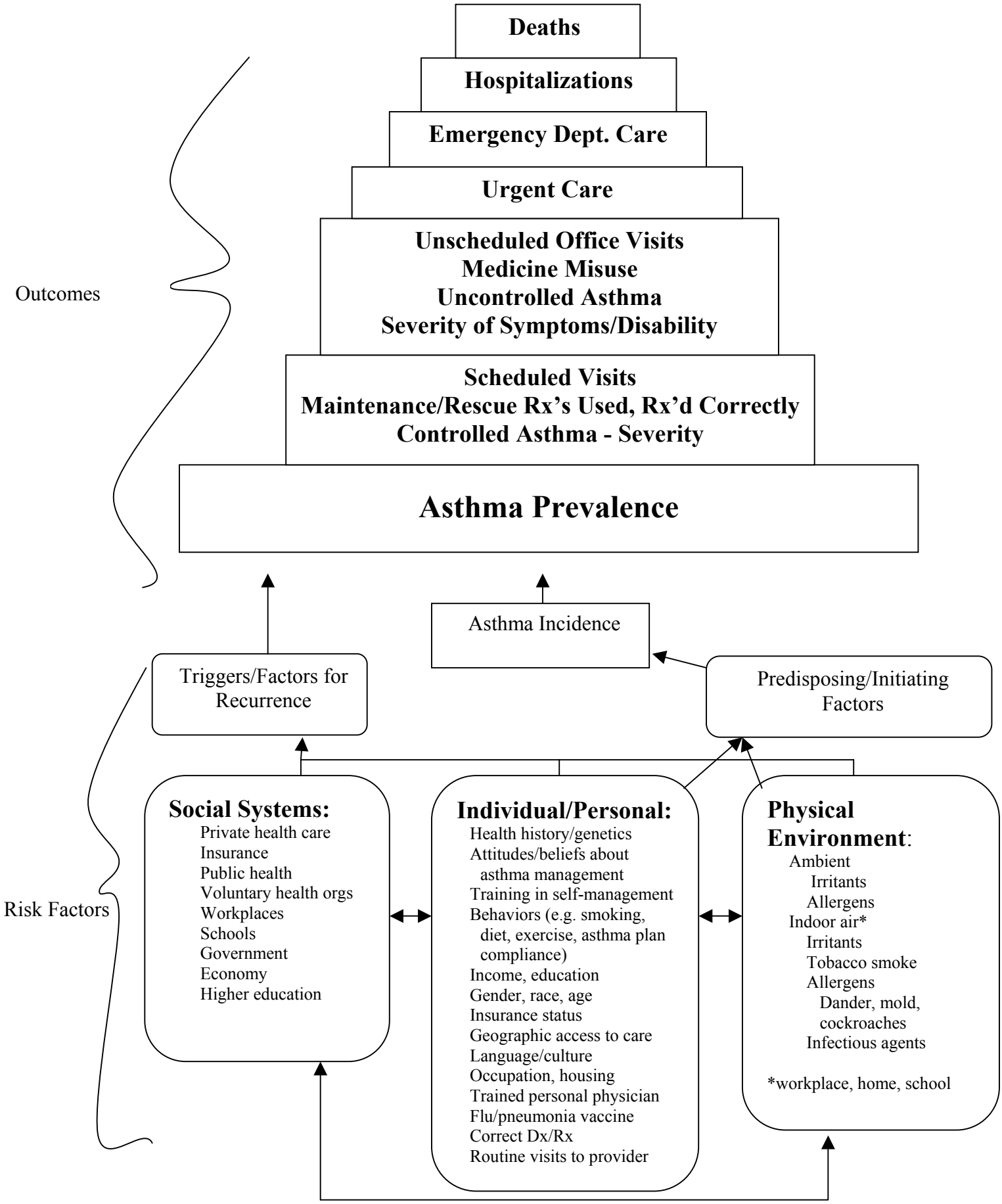
Iowa Indicator (Analyses of all indicators to be completed by IDPH unless otherwise noted)		Yrs Indicator Calculated, Disseminated							Iowa Data to be Collected: When, By Whom			
		Actual		Proposed					Yrs Collected (Projected)	Agencies Responsible	Database	Data Collection Issues
		02	03	04	05	06	07	08				
Children and Youth												
E6.1	Currently overweight/obese				X		X		(2001+	IDOE	YRBS	DOE now includes in core YRBS questions.
E6.2	5 fruits/vegetables per day				X		X					
E6.3	Routine exercise in past month				X		X		(2004+)	IDPH	IYTS, IYS	IDPH to add to IYTS and possibly to IYS.*
Access to General Medical Care												
Adults												
E7.1	Have regular doctor				X		X		2001+	IDPH	BRFSS	IA BRFSS to continue to ask *core/module* utilization questions
E7.2	Seen doctor for any reason past 12 months				X		X		1987-00, 2002			
Children and Youth					X		X					
E8.1	Have regular doctor				X		X		(2005, '07, '09, etc…)	IDOE	YRBS	IDOE may add question to YRBS.*
E8.2	Seen doctor for any reason past 12 months				X		X		(2004+)	IDPH	IYTS, IYS	IDPH to add questions to IYTS and possibly to IYS.*
Social Systems												
F1.1	Open Airways programs in schools						X		(2007+)	ALA	Administra-tive data	ALA tracks now informally
F1.2	CDC school asthma guide in use in schools						X		(2007+)	IDPH	??	Not now collected
F2.1	Third-party reimbursement for asthma education						X		(2007+)	IA Asthma Coalition, IDPH	??	Not now collected

*The YRBS and IYS have limited capacity to add questions due to the amount of class time allotted to completing the surveys. It is expected that o three questions on asthma will be able to be added to the YRBS in 2005 and no additional questions will be added to the IYS in the next few years.

Flow Chart of Iowa Asthma Surveillance System



Asthma Risk Factors and Outcomes of Surveillance Interest



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Abbreviations

ALA	American Lung Association
ASTCDPD	Association of State and Territorial Chronic Disease Program Directors
ASTHO	Association of State and Territorial Health Officials
BRFSS	Behavioral Risk Factor Surveillance System
CADE	Center for Acute Disease Epidemiology, Iowa Department of Public Health
CD	Chronic Disease
CDI	Chronic Disease Indicator
CDC	Centers for Disease Control and Prevention
CHIP (SCHIP)	Children's Health Insurance Program (a.k.a, State CHIP or SCHIP)
CMS	Center for Medicare and Medicaid Services (formerly HCFA), U.S. Dept. Health and Human Services
CPS	Current Population Survey
CSTE	Council of State and Territorial Epidemiologists
DHHS	Department of Health and Human Services
Dx	Diagnosis
HAWK-I	Healthy and Well Kids in Iowa
IAC	Iowa Asthma Coalition
IBRFSS	Iowa Behavioral Risk Factor Survey
IDHS	Iowa Department of Human Services
IDNR	Iowa Department of Natural Resources
IDPH	Iowa Department of Public Health
IHA	Iowa Hospital Association
ISAAC	International Study of Asthma and Allergies in Childhood
IYRBS	Iowa Youth Risk Behavior Survey (also YRBS)
IYS	Iowa Youth Survey
IYTS	Iowa Youth Tobacco Survey
MCH	Maternal and Child Health
NAMCS	National Ambulatory Medical Care Survey
NAACCR	North American Association of Central Cancer Registries
NAEPP	National Asthma Education and Prevention Program
NAS	National Asthma Survey
NCHS	National Center for Health Statistics
NCCDPHP	National Center for Chronic Disease Prevention and Health Promotion
NECLS	National Early Childhood Longitudinal Survey
NHANES	National Health and Nutrition Examination Survey
NHIS	National Health Interview Survey
NHLBI	National Heart, Lung and Blood Institute
NHAMCS	National Hospital Ambulatory Medical Care Survey

NIH	National Institutes of Health
NIS	National Immunization Survey
NLSY79	National Longitudinal Survey of Youth
NPCR	National Program of Cancer Registries
NPHSS	National Public Health Surveillance System
NRC	National Research Council
NSCH	National Survey of Children's Health
NSECH	National Survey of Early Childhood Health
Pts	patients
Rx	prescription
SID	State Inpatient Database
SLAITS	State and Local Area Integrated Telephone Survey
STEPPS	State-based Epidemiology for Public Health Program Support
U of I	University of Iowa
USDHHS	United States Department of Health and Human Services
YRBSS	Youth Risk Behavior Surveillance System

Appendices

Appendix A: Chronic Disease Indicators of Council of State & Territorial Epidemiologists of Importance to Asthma Surveillance

	CSTE Indicator Number	CSTE Indicator	Related IDPH Asthma Surveillance Indicator Number (See work plan for indicator)
1.	44	Influenza vaccination among adults with diabetes	B7.1
2.	45	Pneumonia vaccination among adults with diabetes	B7.2
3.	53	Overweight prevalence among adults	E5.1
4.	54	Obesity prevalence among adults	E5.1
5.	55	Fruit and vegetable consumption among adults	E5.2
6.	56	No fruit or vegetable consumption among youth	E6.2
7.	58	Poverty level among all residents	E1.2, E2.2
8.	59	Current lack of health insurance among all residents	E1.1, E2.1
9.	60	Lack of health insurance in the past year	E1.1, E2.1
10.	63	Prevalence of leisure time physical activity among adults	E5.3
11.	64	Lack of any vigorous activity among youth	E6.3
12.	65	Mortality from chronic obstructive pulmonary disease	None
13.	66	Pneumococcal vaccine among older adults	B7.2, B8.2
14.	67	Influenza vaccination among older adults	B7.1
15.	68	Prevalence of cigarette smoking among adults	E3.1
16.	69	Prevalence of cigarette smoking among youth	E4.1
17.	70	Smokeless tobacco use among youth	None
18.	71	Sales of cigarette packs	None
19.	72.1	Hospitalizations from asthma	B13.1, B15.1, B19.1
20.	72.2	Hospitalizations with asthma	B13.1, B15.1, B19.1
21.	73	Mortality from asthma	A10.1

Chronic Disease Indicators (CDI) Initiative of the Council and State and Territorial Epidemiologists (CSTE)

Purpose of the Indicators

The interactive web site of the CDI Initiate provides access to definitions and data for the Chronic Disease Indicators. As a comprehensive and recommended set of measures, CDI is a public health initiative intended to increase the consistency and availability of chronic disease surveillance data at the state and federal levels. Epidemiologists and other public health professionals can use these materials to enhance surveillance, generate hypotheses, and serve as reference material as they develop, implement and evaluate public health efforts. In addition, we hope that other persons find these materials useful and informative.

CDI is a collaborative project of the Council of State and Territorial Epidemiologist (CSTE), Association of State and Territorial Chronic Disease Program Directors (ASTCDPD), National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention (CDC). Through a contract with CSTE, CDI, including this web site, is managed and directed by the Department of Health Evaluation Sciences, College of Medicine, Penn State University.

CSTE Intended Audience for the Indicators

This document is intended for several professional audiences, particularly those who work in state health agencies.

- Chronic disease epidemiologists can use this as a reference to aid in their analysis and display of chronic disease surveillance data.
- Chronic disease program operators and managers may find this document helpful as they develop and implement comprehensive programs including provisions for high quality and timely surveillance.
- Non-chronic disease epidemiologists can use this document as a reference as they continue to develop categorical and non-categorical surveillance indicators.

Authors of the Indicators

The Council of State and Territorial Epidemiologists (CSTE), the Association of State and Territorial Chronic Disease Program Directors (ASTCDPD), and the National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention (NCCDPHP, CDC) partnered to manage and direct the process to identify these indicators. The development of these indicators is a reasonable and logical consequence of these organizations' activities, including:

- Collection, analysis, and dissemination of epidemiologic data
- Utilization of data and other scientific information for public health decision-making
- Prevention and control of chronic diseases through public health action

Council of State and Territorial Epidemiologists

The Council of State and Territorial Epidemiologists enhances the ability of state and other health agencies to detect, prevent, and control diseases and risks of public health significance. CSTE does this by developing and building effective relationships among state and other health agencies. As a professional organization, CSTE represents public health epidemiologists working in state and territorial health agencies. CSTE has nearly 500 members with surveillance and epidemiologic expertise in a broad range of areas including chronic disease, communicable disease, immunization, environmental health, occupational health, and injuries. The organization frequently provides technical advice and assistance to federal agencies, including the Centers for Disease Control and Prevention (CDC), on matters of state-based epidemiology. CSTE is an affiliate organization of the Association of State and Territorial Health Officials (ASTHO), the professional organization of chief public health executives in each state and territory.

Association of State and Territorial Chronic Disease Program Directors

The Association of State and Territorial Chronic Disease Program Directors represents the chronic disease interests of the state and territorial health agencies and the District of Columbia. First organized in 1988 to address the increasing impact of chronic diseases on the U.S. population, ASTCDPD has mobilized national efforts to reduce chronic diseases and the risk factors associated with them. Much of the Association's early work focused on "putting a face" on chronic diseases and the public health workers engaged in preventing and controlling them. Composed of designated chronic disease program contacts in each state and territory, networks have been established for breast and cervical cancer control, chronic disease epidemiology, chronic disease nutrition, diabetes, physical activity, tobacco prevention and control, women's health, cardiovascular health, osteoporosis, and arthritis. Like CSTE, ASTCDPD is an affiliate organization of ASTHO.

National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention

The National Center for Chronic Disease Prevention and Health Promotion is part of CDC in the United States Department of Health and Human Services. NCCDPHP, CDC's mission is: to prevent death and disability from chronic diseases; to promote maternal, infant, and adolescent health; to promote healthy personal behaviors; and to accomplish these goals in partnership with health and education agencies, major voluntary associations, the private sector, and other federal agencies

Background and History of Public Health Surveillance for Chronic Diseases

Public Health Surveillance

Public health surveillance is the systematic collection, analysis, interpretation, and dissemination of data for use in prioritizing, planning, implementing, and evaluating public health programs, activities, and practice (Thacker, 1994). Originally authorized in the United States in 1878,

public health surveillance first focused on infectious disease, beginning with diseases such as smallpox, yellow fever, and cholera (Thacker, 1994). Under a 1913 model state law, local health officials would investigate and verify 40 infectious diseases, 13 occupational diseases, cancer, and pellagra. After initial control efforts, they would promptly notify state health authorities who would then voluntarily forward these data to the U.S. Public Health Service. Although never fully implemented, the model law served as a basis for standardizing disease surveillance mechanisms among the states.

During the 1970s and 1980s, public health authorities established additional surveillance systems, with increasing emphasis on non-infectious conditions, including cancer, occupational health, behavioral risk factors, and environmental health. These systems developed original methods to collect necessary surveillance information and relied upon new data sources. Original methods included population-based, exposure-based, and case-based registries. Population-based registries have since become the standard for monitoring the occurrence of cancer. In addition, public health authorities began to extensively use surveys, such as in-person and random-digit dial telephone surveys, to gather surveillance information on behavioral risk factors. New data sources included administrative data sets, such as hospital discharge data. While not originally intended for disease surveillance purposes, hospital discharge data provided a unique and important method to monitor selected health conditions.

Each level of government - local, state, and federal - utilized this surveillance information and played a critical role in the development of these surveillance systems. For example, local health officials utilized accurate and timely data for disease prevention and control activities, or to respond to public concern. Often, local health officials were the collectors of original surveillance information. By comparing disease incidence in different geographic areas or population groups of their state, state health officials utilized surveillance data to allocate resources, prioritize public health programs, and to assist local health officials with prevention and control activities. The federal government often received data from the states and used it to monitor regional trends and to allocate public health resources. While the 1913 model law called for and standardized disease surveillance at the state level, all levels of government were affected by it. Similarly, the development of the surveillance efforts in the 1970 and 1980s were enhanced by a partnership between local, state, and federal health officials.

In the recent past, three noteworthy reports underscored the need for more effective surveillance systems. In 1988, the Institute of Medicine reviewed the state of public health in the United States, and subsequently issued its findings in a report, The Future of Public Health (Institute of Medicine, 1988). This report established assessment (along with assurance and policy development) as a core function of public health agencies at every level of government. It defined assessment as "an understanding of the determinants of health and of the nature and extent of community need…"To fulfill this core function of assessment, the report recommends that public health agencies "regularly and systematically collect, assemble, analyze, and make available information on the health of the community, including statistics on health status, community health needs, and epidemiologic and other studies of health problems. "As a public health science, surveillance fulfills this need and serves, therefore, as the foundation of assessment. Building upon the foundation of public health surveillance and assessment are the other two core functions of public health: policy development and assurance. Policy

development is the process by which society makes decisions about problems, chooses goals and identifies the means to reach them. Assurance is the authoritative function of making sure that the necessary services are provided to reach the policy goals.

A related report by the National Research Council (NRC) was published 10 years later and established indicators, principles and policies for implementing an information network to measure the performance of public health partnership grants (Panel on Performance Measures, 1997). Performance measurement enhances accountability and provides a mechanism for documenting program outcomes. Performance measurement activities are part of the "broader agenda for collecting and using health data to protect the health of the public, as well as guide the development and implementation of health policies at the local, state, and federal levels. "The NRC Panel identified key sources of data and information--registries, surveys, administrative databases, and patient records - as the basis for developing and using performance measures. While these key sources for performance measurement and the resulting indicators are the same as or overlap with surveillance measures, the intended use as a performance measure is often different than the intended use as a surveillance indicator.

In addition, in the 1996 fall edition of the Journal of Public Health Management and Practice the CSTE called for the establishment of the National Public Health Surveillance System (NPHSS) (Meriwether, 1996). In this article, CSTE described a blueprint for the NPHSS as an overarching system to expand, coordinate, prioritize, and standardize approaches to public health surveillance systems nationally and across disciplines. NPHSS was designed in a standard yet flexible format by which a disease, condition, risk factor, or exposure could be placed under national surveillance. While maintaining flexibility, NPHSS is intended to bring surveillance activities and systems at the state and national level into one overarching system. The chronic disease indicators described in this document join the National Notifiable Disease Surveillance System, which is mostly composed of infectious and communicable diseases, already in NPHSS.

At the national level, the federal government initiated and maintains Healthy People, an extensive objective setting and assessment process for the United States. This process began with national health objectives for the year 1990 (Public Health Service, 1980) and moved to objectives for the year 2000 (U.S Department of Health and Human Services, 1991). Health objectives for the year 2010 have been drafted, circulated for review, and are scheduled for publication in January 2000 (U.S. Department of Health and Human Services, 1998). Establishing and monitoring the achievement of objectives has enhanced the practice of surveillance by defining surveillance indicators, identifying data systems, and improving surveillance. These health objectives are comprehensive, including those specific to chronic disease, and have called for the further development of surveillance capability.

Chronic Disease and Public Health

From the beginning to the end of the 20th century, the leading causes of death in the United States shifted from infectious to chronic diseases. Today, chronic diseases-such as cardiovascular disease, cancer, and diabetes-are among the most prevalent, costly, and preventable of all health problems. Seven of every 10 Americans who die each year, or more than 1.7 million people, die from a chronic disease. The medical care costs for people with

chronic diseases total more than $400 billion annually, or more than 60% of total medical care expenditures. Cardiovascular disease and cancer account for almost two-thirds of all deaths (Centers for Disease Control and Prevention, 1999).

To a certain degree, the major chronic disease killers-cardiovascular disease, cancer, diabetes, and chronic obstructive pulmonary disease-are an extension of what individuals choose to do, or not to do, and the environment in which they live. Individuals who practice health-damaging behaviors risk decreased quality of life and early death. Four risk behaviors in particular-use of tobacco, lack of physical activity, poor nutrition, and alcohol misuse-are major contributors to cardiovascular disease and cancer, our nation's leading killers. These behaviors also exacerbate the life-threatening complications of diabetes. The health agency in every state is actively involved in efforts to reduce these behaviors, thereby removing the risk prior to the initiation of disease-primary prevention.

In addition, we now have tools for secondary prevention, detecting certain chronic diseases in their early stages, when treatment is most effective. Regular screening can detect cancers of the breast, cervix, colon, and rectum and can also be critical in preventing the debilitating complications of diabetes. Screening and appropriate follow-up for high blood pressure and elevated cholesterol can be life-saving measures for individuals at risk for cardiovascular disease. Access to high-quality and affordable secondary prevention measures for all Americans is essential if we are to save lives and reduce medical care costs.

Public health has observed and responded to this change in patterns and opportunities for prevention by increasing the scope and sophistication of its chronic disease prevention and control efforts. To enhance and lead the nation's battle against chronic diseases, the Centers for Disease Control and Prevention (CDC) created the National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) in 1988. NCCDPHP, CDC addresses the largely preventable burden of chronic disease, building upon current efforts to establish a nationwide framework for chronic disease prevention that will serve Americans in all states well into the 21st century.

In addition, state health departments also increased their chronic disease prevention and control efforts with funding from state governments and federal agencies such as CDC. Today, for example, every state has a comprehensive program in tobacco control and breast and cervical cancer control. Most states currently have core public health programs in cardiovascular health and diabetes control while some have already developed comprehensive programs.

Chronic Disease Surveillance

Along with an increase in program activities, public health has increased its capability to conduct surveillance for chronic diseases and their risk factors. Surveillance began with, and continues to depend heavily upon, the National Vital Statistics System (NVSS), created because state laws require death certificates to be completed for all deaths and federal law mandates national collection and publication of vital statistics data. The state health agency has responsibility for maintaining this system that ascribes a leading and contributing cause to every resident death in the United States. Through cooperative activities of the states and the National Center for Health

Statistics (NCHS), CDC, standard forms and model procedures are developed and recommended for state use. NCHS and state health agencies share the costs incurred by the states in providing vital statistics data for national use.

In the 1970's, selected chronic diseases came under surveillance through the implementation of disease registries. For example, the National Cancer Institute established the Surveillance, Epidemiology, and End Results (SEER) cancer registry system to record and follow every new case of cancer in nine selected populations of the United States. A continuing project, SEER monitors trends in cancer incidence, mortality, and patient survival in the United States. In addition, many other studies of cancer are conducted with this data bank.

In the 1980s and 1990s, CDC and state health agencies collaboratively developed additional surveillance systems to monitor chronic disease risk factors or disease incidence. Begun in 1984 with CDC assistance, fifteen state health agencies monitored adult behaviors related to the leading causes of death through the Behavioral Risk Factor Surveillance System (BRFSS). Recognizing its usefulness and flexibility, all 50 states, the District of Columbia, and three territories participated in BRFSS by 1994. Also supported with financial and technical assistance from CDC, 38 states used the Youth Risk Behavioral Surveillance System (YRBSS) in 1997 to monitor risky behaviors among high school students. In 1992, Congress authorized the National Program of Cancer Registries (NPCR) at NCCDPHP, CDC, to monitor local trends in cancer incidence and mortality with a statewide, population-based cancer registry. NPCR currently funds 45 states, 3 territories, and the District of Columbia for this purpose.

Currently, multiple data systems form the foundation for chronic disease surveillance including the following:

- Notifiable disease systems (e.g., lead poisoning reporting systems)
- Vital statistics (e.g., death certificates)
- Sentinel surveillance (e.g., Sentinel Event Notification System for Occupational Risks [SENSOR])
- Disease registries (e.g., cancer registries)
- Health surveys (e.g., behavioral risk factor surveillance telephone surveys)
- Administrative data collections (e.g., hospital discharge systems)
- US Census (e.g., poverty rates)

Information from these chronic disease surveillance systems is enormously useful to public health agencies in general, and to chronic disease epidemiology and prevention programs in particular. Information from these data systems is used to:

- Track health, disease, and risk factor trends over time and place, and across population subgroups
- Quantify the burden of chronic diseases among a population to assist in the reasonable allocation of resources for public health programs
- Establish broad program priority areas and goals
- Plan, implement, and evaluate specific public health policies, programs, and services.

Surveillance information is frequently incorporated into health agency strategic plans, quality assurance and performance improvement initiatives, and program evaluation efforts. It generates

hypotheses for scientific research or identifies areas for further refinement of a surveillance system.

While these improvements in capacity for chronic disease surveillance are impressive and important, substantial gaps remain. With the exception of cancer, statewide disease incidence data are rarely available for chronic disease and public health purposes. Clinical data systems are frequently not available for the purposes of public health surveillance. These systems contain potentially unique and useful clinical information such as foot and eye examinations among persons with diabetes. In addition, recent research by health promotion experts demonstrated increased public health effectiveness by using multi-level strategies, intervening on the personal, interpersonal, organizational, and community levels. To be appropriately targeted, these strategies require surveillance information on community facilities, services, and policies. Currently, such surveillance information is not widely available. Finally, the public health community has not previously identified and consistently defined chronic diseases or their related risk factors for surveillance purposes.

OUTCOME INDICATORS RATIONALE

HEALTH OUTCOME INDICATORS

Prevalence (the number of persons with a disease at some point in time or during some time period) is the basic measure used in public health to describe the frequency of chronic diseases of long duration, such as asthma.

About 160,000 Iowans are estimated to have asthma, with asthma prevalence nationwide having more than doubled since 1980.

Disability days (the number of days one is unable to perform normal daily activities, such as going to school and work,) **and frequency of health symptoms,** such as coughing, sleeplessness, and wheezing, help to measure how severe are cases of asthma and how well cases of asthma are being managed.

Frequency of emergency department, urgent care, and physician office visits and use of asthma medications also are indicators of appropriate management of asthma. Recurrent severe asthma episodes are largely preventable when asthma is managed by patient and health care providers according to established guidelines.

The 12,000 **asthma-related hospitalizations** in Iowa each year account for three percent of all hospitalizations in the state and, like other urgent medical care for asthma, represent millions of dollars in health care expenditures which could largely be avoided with proper medical and self-management.

Asthma-related deaths are rare, but by comparing Iowa to the nation and other states and by looking at Iowa trends overtime, sub-populations at increased risk of dying from uncontrolled asthma can be identified and appropriate interventions planned.

USE OF SERVICES OUTCOMES

Indicators measuring **medications taken** track how appropriately maintenance and rescue medicines in being used by the asthmatic population. Inappropriate use results in increased illness and preventable urgent care and hospital visits.

Indicators measuring **routine visits to clinics and urgent care visits to clinics, emergency departments, and hospital inpatient units** track whether appropriate preventive care is being received and how well asthma is being managed by persons with asthma and their providers. Asthma is considered an 'ambulatory care sensitive' chronic illness, one whose severity and costs can be controlled through reception of routine preventive care.

WORK-RELATED ASTHMA OUTCOMES

Several hundred sensitizing agents (allergens) are known to cause asthma, and many of these agents are commonly found in the workplace. These sensitizing agents along with inhaled irritants found in the workplace are believed to be responsible for 5 to 20 percent of asthma in adults. Between 7,500 and 30,000 adult Iowans have work-related asthma.

RISK FACTOR INDICATORS

ENVIRONMENTAL RISK FACTORS

Air pollutants, such as ozone, sulfur dioxides and particulates exacerbate asthma, especially in children. Increased emergency room visits for asthma have been associated with rises in ozone levels. Indicator D1 addresses air pollution caused by open burning.

PERSONAL RISK FACTORS

A number of personal factors are related to increased risk of asthma or asthma recurrence: low socioeconomic status, exposure to tobacco smoke, obesity, lack of exercise, and not having a 'medical home' where routine asthma care is received. Indicators E1 - E2 are measures of many of these common personal risk factors for asthma, which can be modified to reduce the severity and frequency of recurrent asthma.

SOCIAL SYSTEMS RISK FACTORS

Schools can play important roles in helping children to manage their asthma both through education and training about asthma management and through assuring that asthma triggers in schools are reduced. Students who successfully manage their asthma miss fewer school days and are more likely to be physically active. CDC has adopted *Strategies for Addressing Asthma Within a Coordinated School Health Program* and has developed a list of effective asthma intervention programs. One of those effective programs is *Open Airways for Schools* of the American Lung Association, which is also addressed in *Healthy Iowans 2010*. Indicator F1 addresses **school asthma programs**.

Outpatient education that teaches people with asthma how to monitor and control their asthma and provides patients with asthma action plans is vital to reducing the burden of asthma both on individuals and the health care system. Outpatient education must be routine and third-party reimbursable if it is to be provided to all people with asthma. Indicator F2 addresses **insurer reimbursement for outpatient education**.

Appendix D: List of Potential Iowa and National Asthma Surveillance System Data Sources and Some of their Limitations

Existing and Potential Sources of Iowa and the National Data		
SOURCES OF IOWA DATA		
Outcomes Data: Prevalence, Asthma-Related Disability, Symptoms, Deaths; Use of Heath Care Services		**Years Asthma Data Available***
	All (Adults and Youth)	
	• Medicaid	1999
	• Other insurance: HAWK-I	2002 forward
	• Workers' Compensation, IA Dept of Workforce Development	July 1, 2001 forward
	• State Inpatient Database (SID)	1991 forward (1994 forward on personal computer)
	• IA State Trauma Registry - (STR) Ambulance Emergency Department	Not yet available
	• National Asthma Survey	To be collected in future
	• Reportable Illnesses, IDPH (work-related asthma)	To be collected in future
	• State medical examiner reports	To be explored
	• IA Vital Records	1959 forward electronic, from 1904 - 1958 paper,
	• Iowa Maternal and Child Health (MCH) data sets	To be explored
	Adults Only	
	• IA Behavioral Risk Factor Surveillance System (BRFSS), IDPH (State-added Iowa BRFSS questions on asthma: year first diagnosed, episode in last year, # provider visits for urgent care, worsening symptoms in last year - all available per BRFSS for certain years)	1999 forward – prevalence; 2001 forward – symptoms, use of services,
	Children Only	
	• IA BRFSS, IDPH - no disability or symptom data	2001 forward
	• IA Youth Risk Behavior Survey • (IYRBS), IDOE	To be collected 2005
	• IA Youth Tobacco Survey • (IYTS), IDPH	To be collected 2004
	• IA Youth Survey, (IYS), IDPH	To be explored
	• National Survey of Children's Health, National Center for Health • Statistics (NSCH, NCHS)	Collected in 2003 only, available in 2004
	• National Immunization Survey (NIS)	2000+?
Population Estimates		
	• US Bureau of the Census, US Department Commerce	1900 forward
	• Denominators for each survey population	Same years as survey
Risk Factor Data:		
Environmental Data		

Appendix D: List of Potential Iowa and National Asthma Surveillance System Data Sources and Some of their Limitations

Existing and Potential Sources of Iowa and the National Data		
	Ambient air monitoring for ozone, other air pollutants	On EPA web site
Personal Risk Factor Data		
	Adults Only • IA Behavioral Risk Factor Surveillance System (BRFSS), IDPH	1988 forward, more risk factors in subsequent yrs
	Children Only	
	• IA Youth Risk Behavior Survey (IYRBS), IDOE	Collected since
	• IA Youth Tobacco Survey (IYTS), IDPH	Collected since
	• IA Youth Survey, (IYS), IDPH	To be explored
	• National Survey of Children's Health, National Center for Health Statistics (NSCH, NCHS)	Collected in 2003, available in 2004
Social Systems Data		
	• IDPH Asthma Programs Survey of Interventions Statewide	2002
*Data not available for all indicators in the broad categories listed for all years. See tables on specific indicators for years in which data are available for specific indicators.		
SOURCES OF NATIONAL DATA		
	All (Adults and Children) National Health Interview Survey (NHIS), NCHS	1979 forward (years that data available differ for each indicator)
	National Health and Nutrition Survey (NHANES), NCHS	1971 forward
	National Health Care Survey National Ambulatory Care Survey (NACS) National Hospital. Ambulatory Med. Survey (NHAMCS)	1973-1978, 1985, 1989+(NACS) 1992+ (NHAMCS)
	National Asthma Survey (NAS) - collected per State/Local Area Integrated Telephone Survey (SLAITS)	Collected in 2003, available in 2004 or 2005
	Adults Only BRFSS, CDC (asthma module optional in 1999)	2000 forward
	Children Only YBRS, CDC	Not available
	Youth Survey	Not available
	Youth Tobacco Survey, CDC	Not available
	National Maternal & Infant Health Survey (NMIHS)	To be explored
	SLAITS: National Survey of Early Childhood Health (NSECH) National Survey of Children's Health (NSCH)	 2000 2003
	National Longitudinal Survey of Youth (NLSY79)	1999, 2000
	National Early Childhood Longitudinal Study (NECLS) - birth and Kindergarten cohorts	Birth cohort-2001 Kindergarten cohort-?
	International Study of Asthma/Allergy in Childhood (ISAAC)	Unknown
	US Bureau of the Census, U.S. Department of Commerce	1900+

Some Limitations of Data Sources

Surveys of Self-Reported Data, Including BRFSS

- Self-reported data may be inaccurate.
- Selection bias by administrators of survey, survey design.
- Youth and adult surveys word questions differently and data not always compatible even within a survey as wording is changed over time.
- Institutionalized population is excluded from youth and adult surveys.
- Data on asthma prevalence may not be collected every year - modules/core questions may become optional.
- Not all states ask same questions in BRFSS surveys, so comparison to other states other than for prevalence indicators difficult.
- National survey questions may not be asked or may not be worded so that responses are directly comparable to Iowa survey data and years in which data are collected may differ.
- Because asthma is a chronic disease changes in some indicators (e.g., prevalence) as a result of interventions or other factors may not be immediate apparent.

Youth Surveys-Specific Issues (See Appendix E for further description YRBS, ITYS and IYS)

- Youth surveys currently have no asthma-specific questions.
- Dropouts are excluded from youth surveys.
- Multiple youth surveys may show differing prevalence rates due to differences in grade levels surveyed, in years surveyed, in questions asked.
- Youth in elementary/preschool excluded from IYS, IYTS, and IYRBS surveys. Youth in middle school excluded from IYRBS study populations.

BRFSS-Specific Issues (See Appendix E for further description of the BRFSS)

- Those without phones or unlisted numbers excluded from BRFSS.
- Persons less than 18 years excluded from BRFSS, except for several limited optional questions about any children with asthma in household.

Administrative Data, Including Insurance Data sets

Iowa State Inpatient (SID) and Outpatient Databases (See Appendix E for further description of the SID and outpatient databases)

- Discharge diagnosis may be inaccurate.
- Payment mechanisms, practice patterns affect decisions to hospitalized patients.
- Out of state admissions of Iowans missing.
- Multiple admissions not easily accounted for, no personal identifiers.
- National estimates are based only on data from those states with SIDs.
- Race data incomplete, ethnicity field not in database.

Iowa Medicaid Data-Specific Issues (See Appendix E for further description)

- Population represents low-income eligible for Medicaid during any given month, and subscriber population is fairly fluid, with eligibility changing and those enrolled in fee-for-

Some Limitations of Data Sources

service coverage and managed care coverage changing over time.

- Asthma-related claims among those 65 years and older are first submitted to Medicare so Medicaid claims underestimate asthma prevalence in the elderly.
- Data sets are complex and difficult to interpret as are collected primarily to pay claims and track enrollment and services provided, not conduct disease surveillance.
- No nationally accepted definition of what constitutes a case of asthma for public health surveillance has been agreed upon for insurance claims databases, making state-to-state and state-to-nation comparisons difficult.

Workers' Compensation Data-Specific Issues (See Appendix E for further description)

- Data available electronically only from July 1, 2001 forward
- Long delays between time an asthma-related claims if filed and time is reported as claims for work-related illness are frequently contested by employers
- Only claims that result in three or more days of lost work are reported
- Work-related asthma is under-recognized and under-diagnosed
- Work-related asthma is reportable, but need not be specifically named except as an other 'respiratory disorder' in data sent to the Division of Workers' Compensation.

HAWK-I Program Data-Specific Issues (See Appendix E for further description)

- Full year's data available electronically only from 2002 forward
- Data set has not been examined before by IDPH for purposes of chronic disease surveillance and many of same issues that exist for the Medicaid data set exist for HAWK-I

National Data

Census Data Issues

- Census Bureau normally re-estimates intra-decennial census years' population counts every year, so that the denominators for intra-decennial years change slightly every year.

Issues with Various National Health Surveys:

- For National Health Interview Survey and other national surveys, the wording of questions is changed periodically and wording may not be consistent from one survey to another. Some surveys are one-time only or not conducted continuously. Some questions within surveys are not asked during every year the survey is conducted.
- BRFSS only two core questions asked each year beginning in 2000. Asthma module questions asked only by states which chose to include them in any given year.

BRFSS:

Established in 1988, the Iowa Behavioral Risk Factor Surveillance System (BRFSS) is a CDC funded annual household-based phone interview survey in which self-reported information about the burden of chronic diseases and their risk factors is collected for the non-institutionalized adult population ages 18 years and older. Collection of BRFSS data is not mandated by Iowa code or administrative rule.

All states participate in the BRFSS. In Iowa, about 4,700 households are surveyed annually. Due to the BRFSS's small sample size, only statewide (not county, regional or urban/rural prevalence rates can be computed).

In certain years, optional questions are added to the basic BRFSS survey. In 1999, the Iowa BRFSS began to include optional questions that ask about asthma in adults. The BRFSS data are the first to be collected that allow estimates to be made of asthma prevalence in adults statewide.

In 2001, additional optional asthma-related questions were added which ask for more details about the severity of adult asthma and about asthma in children in the households where adults were interviewed. As with the 1999 BRFSS adult asthma questions, the year 2001 BRFSS questions on asthma in children provide the first data that allow asthma prevalence estimates to be made for the general population of Iowa children.

Other questions about certain asthma risk factors (e.g., tobacco use, exercise, obesity, insurance coverage, and use of health-care services) have been included in the annual BRFSS survey for many years and rates of these risk factors for Iowa adults with and without asthma are compared in this report.

See the CDC, BRFSS web site for more details.

Iowa Medicaid Subscriber Database:

Several limitations exist in using insurance claims databases, such as Medicaid's, for public health surveillance. One limitation is that no nationally accepted definition of what constitutes a case of asthma for public health surveillance has been agreed upon for insurance claims databases, making state-to-state and state-to-nation comparisons difficult. (For data sets derived from death records, inpatient discharges and self-reported interview surveys (e.g., BRFSS), nationally agreed upon asthma surveillance case definitions have been adopted.)

Medicaid prevalence data provide the best picture currently available of the problem of asthma in some of Iowa's highest risk populations—children, the low-income and racial minorities.

Iowa Medicaid data are available through the Iowa Department of Human Services directly or its fiscal intermediary ACS. IDHS staff report data are kept for five to seven years. The Centers for Medicare and Medicaid Services (CMS) of the U.S. Department of Health and Human Services also has begun to create national and state specific Medicaid databases based on data sets that must be reported to CMS by state Medicaid programs.

Healthy and Well Kids in Iowa (HAWK-I):

HAWK-I, Iowa's State Children's Health Insurance Program (CHIP) program, is managed by the IDHS and was begun in 1999 with enrollment gradually increasing over a three-year period. CHIP was created via the new Title XXI of the Social Security Act. Title XXI enables states to provide health care coverage assistance to uninsured, targeted low-income children. Targeted low-income children are those who are under 19 years of age, who reside in families with income below 200% of the federal poverty level, are not eligible for Medicaid, nor covered under a group health plan or other health insurance. Iowa's CHIP program consists of Medicaid coverage for children below 133% of the federal poverty level and a non-Medicaid program for children below 200% of the federal poverty level.

IDHS considers 2002 the first year for which fairly complete data were collected and available. Maximus is the fiscal intermediary. HEDIS measures are computed through the University of Iowa. All HAWK-I covered care is provided through three managed care organizations, Wellmark, Iowa Health Systems and John Deere Health Plan. Carriers have six months to submit encounter data to Maximus following provision of care.

Iowa Death Certificates:

Under the *Code of Iowa*, Chapter 144, Vital Records and *Iowa Administrative Code,* Public Health[641], Chapter 96, Vital Records, the IDPH is authorized to collect from local registrars vital records, including death certificates, and maintain those records as part of a statewide vital records database. Death records, of interest to the Iowa asthma surveillance system, are on file with the IDPH from 1904 forward.

Counts of asthma-related deaths in the Iowa asthma surveillance system will be taken from death certificates of Iowa residents in which asthma is listed as an underlying (primary) or contributing (secondary) cause of death. The IDPH has paper copies of Iowa death certificates on file from 1904 forward and has stored death certificate data electronically since 1958.

The national Council of State and Territorial Epidemiologists (CSTE) defines deaths <u>from</u> asthma as those for which asthma was listed as the underlying cause. Multiple contributing causes of death may be listed on the death certificate and CSTE defines deaths occurring in people <u>with</u> asthma as those in which asthma is listed as a contributing cause. While multiple contributing causes may be listed, only one underlying cause of death may be listed on a death certificate.

Someone dying of an asthma episode, who also has chronic bronchitis and emphysema, should have asthma coded to the underlying cause of death. Someone with asthma who dies of emphysema (not from an asthma episode) may have asthma listed as a contributing cause if the physician filling out the certificate feels asthma contributed to the death and is aware of the decedent's asthma. Underreporting of asthma-related deaths is believed to occur frequently, especially among those with persistent asthma and a history of smoking.

Iowa State Inpatient Database (SID) and Outpatient Data Set:

Under *Iowa Administrative Code*, Public Health[641], Chapter 177, Health Data, the IDPH is authorized to collect information from other state agencies, the Iowa Hospital Association (IHA) and other for the purpose of providing health information to health care providers, the general public and others. Under this chapter, hospitals are specifically required to report *inpatient, outpatient and ambulatory care* information to the Iowa Hospital Association that in turn is to provide these data to the IDPH. The IDPH has received data from the IHA from its State Inpatient Database for the years 1994 forward. In 2000-2001, the IHA began to collect data on a limited basis of hospital outpatient visits. In 2003, the IDPH should receive limited information on an estimated 800,000 outpatient records.

The SID contains selected data elements for each inpatient discharged from an Iowa hospital. Data are sent routinely by all Iowa hospitals to the Iowa Hospital Association, which then provides SID and outpatient data to the Iowa Department of Public Health.

The SID and outpatient databases do not include Iowans who are treated solely in out-of-state hospitals for their asthma. The SID and outpatient data sets also lack several basic demographic variables (income, education and ethnicity) and is missing data from the race field in about 20 percent of all admissions.

Another drawback to using the SID is that it contains no personal identifiers. Without personal identifiers, readmission of a person with asthma at either the same or a different hospital becomes hard to identify. As a result, estimating counts of people with asthma who were hospitalized, as opposed to counts of admissions for asthma becomes equally difficult. Thus, those parts of the report describing hospitalizations are not measures of asthma prevalence but of overall inpatient services usage.

The SID lists one *admitting* diagnosis and up to nine *discharge* diagnoses for each inpatient admission, all of which will be used to identify asthma-related visits since one cannot distinguish between primary and secondary diagnoses in the data sets.

Iowa Workers Compensation Database:

Many sections of Chapters 17A, 85, 85A, 85B, 86 and 87 of the *Code of Iowa* address reporting of work-related injuries to the Iowa Workers' Compensation Division of the Iowa Department of Workforce Development. In implementing these sections of the *Code*, Workers' Compensation[876], Chapters 3, 9, and 11 of the *Iowa Administrative Code* mandate reporting to the Iowa's Workers' Compensation Division of work-related injuries and illnesses that result in a claim being paid and for which an employee was off work for three days or more, or, which resulted in permanent disability or death.

While work-related asthma is not specifically identified as a reportable illness, it is reportable to the state under the category of other 'respiratory disorders'. The Division has partial data sets available electronically for 1998 - June 2001 and complete electronic data from July 2001 forward.

Iowa Youth Risk Behavior Survey (IYRBS):

Funded by CDC, the IYRBS is conducted every other year during odd years in Iowa high schools. About 1,500 youth are surveyed. Core questions are standardized nationally. The IDPH is working with the IDOE to add the two national asthma module questions to the 2005 survey. No sections of the *Code of Iowa* or *Iowa Administrative Codes* specifically address the IYRBS.

Iowa Youth Survey (IYS):

Funded largely with federal dollars, the IYS surveys three grades, 6th, 8th and 11th graders in 2003 every three years. All public schools students and many private school students in these grades in Iowa complete the survey, about 90,000 students in 2003. Asthma-related questions have not been added to the survey and logistically will be difficult to add in the near future. The IYS is required to be used under *Iowa Administrative Code* Public Health[641] section 151.4(11) by the IDPH Division of Tobacco Use, Prevention and Control in assessing the needs of its partnership communities.

Iowa Youth Tobacco Survey (ITYS):

The IYTS funded through CDC and some state dollars and is conducted every other year of a representative sample of about 3,300 middle and high school students in Iowa. The survey instrument is designed by the IDPH. The Iowa Asthma Control Program is working with staff in the IDPH tobacco program to add questions to this survey on asthma prevalence, and asthma-related disability, medical services and medication use, and asthma knowledge and management training. Section 142.6(a) of the *Code of Iowa* authorizes the Division of Tobacco Use, Prevention and Control of the IDPH to collect data to demonstrate 'consistent progress in reducing the prevalence of tobacco use among youth and adults' and increased compliance with tobacco sales laws and ordinances. The *Code of Iowa* and *Iowa Administrative Code* do not specifically address the IYTS.

Iowa State Trauma Registry (STR):

Chapter 147A of the *Code of Iowa* and Public Health[641], Chapter 136, Trauma Registry of the *Iowa Administrative Code* mandate the reporting of patient data for all ambulance runs, including runs for non-injuries, to the IDPH. The STR also collects reports of trauma patients seen in emergency departments and as inpatients in Iowa hospitals. As of 2003, ambulance run data, which is to include runs for asthma and asthma-like conditions, are incomplete in the STR. However, the registry should eventually provide data on asthma-related runs to the IDPH.

Iowa Air Quality Data:

The Air Quality Index (AQI) is used to report daily air quality in Iowa. The AQI is computed from real-time air monitoring data and was created to inform the public of health effects that can occur within a few hours or days after breathing polluted air. The Environmental Protection Agency (EPA) has developed the AQI for five pollutants regulated by the Clean Air Act (CAA): ground-level ozone; particulate matter (PM2.5-PM10); carbon monoxide; sulfur dioxide (SO2) and nitrogen dioxide (NO2).

The Iowa Department of Natural Resources (IDNR) is responsible for monitoring ambient air quality in Iowa. Historical AQI values for Iowa and other states are available at the EPA web site: http://www.epa.gov/air/data/. The IDNR collects air quality data under the authority of the Federal Clean Air Act and the *Code of Iowa,* section 455B.133(3), and the *Iowa Administrative Code* Environmental Protection Commission[567], Chapters 21 and 22. Chapter 21.1(3) of the IAC specifies

that owners and operators of equipment as defined shall submit emissions information upon request of the IDNR director. Chapter 22.105(2) specifies emissions reporting requirements for sources subject to the CAA.

Ambulatory care: Medical care provided at hospital emergency and outpatient departments.

Asthma: A disease characterized by airway constriction, mucus secretion, and chronic inflammation, resulting in reduced airway flow and wheezing, coughing, chest tightness and difficulty breathing. (Healthy People 2010)

"…a chronic inflammatory disorder of the airways in which many cells and cellular elements play a role, in particular, mast cells, eosinophils, T lymphoctyes, macrophages, neutrophils, and epithelial cells. In susceptible individuals, chronic inflammation causes recurrent episodes of wheezing, breathlessness, chest tightness and coughing, particularly at night or in the early morning." These episodes are usually associated with widespread but variable airflow obstruction that is often reversible either spontaneously or with treatment. The inflammation also causes an increase in bronchial hyperresponsiveness to a variety of stimuli." (NHLBI, 1997)

Asthma management: A comprehensive approach to achieving and maintaining control of asthma. It includes patient education to develop a partnership in management, assessing and monitoring severity, avoiding or controlling asthma triggers, establishing plans for medication and management of exacerbations and regular follow-up care.

Atopy: The propensity, usually genetic, for developing IgE-mediated responses to common environmental allergens.

Behavioral Risk Factor Surveillance System (BRFSS): See Iowa Behavioral Risk Factor Surveillance System

Causal factors: Risk factors that sensitize the airways and cause the onset of asthma. The most important of these factors are allergens and chemical sensitizers. (CDC web site)

Chronic bronchitis: A lung disease characterized by the presence of chronic productive cough most days for 3 months in each of 2 successive years.

Chronic disease: A disease that has a prolonged course that does not resolve spontaneously, and for which a complete cure is rarely achieved. (McKenna, 1998) Chronic diseases are characterized by uncertain etiology, multiple risk factors, long latency periods, prolonged course of illness, non-contagious origin, functional impairment or disability, and incurability. (Brownson, 1993)

Chronic obstructive pulmonary disease (COPD): A lung disease characterized by airflow obstruction due to chronic bronchitis and emphysema, two diseases that often occur together. COPD is one of the most common respiratory conditions among adults worldwide and is the fourth leading cause of death in the United States.

Contributing factors: Risk factors that either augment the likelihood of asthma developing upon exposure to them, or may even increase susceptibility to asthma. These factors include: smoking, viral infections, small size at birth, and environmental pollutants among others. (CDC web site)

Dyspnea: Shortness of breath.

Emphysema: Abnormal permanent enlargement of the air spaces in the lungs accompanied by coughing and difficulty breathing.

Epidemiologic studies: Studies of disease occurrence.

Environmental control: Removal of risk factors from the environment

Exacerbation: Any worsening of asthma. Onset can be acute and sudden, or gradual over several days. A correlation between symptoms and peak flow is not necessarily found. Exacerbation replaces the word attack or episode. (CDC web site)

Epidemiology: A construct of public heath surveillance that defines a measure of the health (i.e., the occurrence of a disease or other health-related event) or a factor associated with health (i.e., health status or other risk factor) among a specified population. The term "indicator" has been alternatively used to describe or evaluate public health programs and services.

Health Status: A description of the health of people in a population using information representative of most people living in the population. Health status can be measured by: birth and death rates, life expectancy, quality of life, morbidity from a disease, risk factors, use of health care services, access to health personnel and facilities, financing of health care, insurance coverage, etc. Health status indicators must be viewed for various sub-populations-age, race, gender, etc, to determine health status disparities. (Healthy People 2010)

Iowa Behavioral Risk Factor Surveillance System (IBRFSS): Begun in Iowa in 1988, the BRFSS is a CDC-sponsored, state- based, nationwide chronic disease surveillance system based on phone interviews in which adults self-report health status and disease risk factors. (For more details see: Appendix E and the BRFSS web site: http://www.cdc.gov/BRFSS)

Iowa Medicaid Management Information System (IMMIS): (For details see Appendix E and Centers for Medicare and Medicaid Services (CMS) web site: http://www.hcfa.gov)

Iowa State Inpatient Database (SID): A database of all inpatient hospital admissions to Iowa hospitals. The IDPH has this database from early 1990's forward. (For more details, see Appendix E, SID)

Iowa Youth Risk Behavior Survey (IYRBS): Database that was developed in 1990 by CDC which funds the survey. It is conducted in each state the Iowa Dept. of Education conducts the survey in a sample of high schools every other year. (For more details, see Appendix E, IYRBS)

Iowa Youth Survey (IYS): Funded largely with federal dollars, the IYS surveys youth in three grades, usually 6th, 8th and 11th graders every three years to identify service needs and program outcomes. (For more details, see Appendix E, IYS)

Iowa Youth Tobacco Survey (IYTS): . The IYTS funded through CDC and some state dollars and is conducted every other year of a representative sample of about 3,300 middle and high school students in Iowa. (For more details, see Appendix E, IYTS)

Indicator: A construct of public heath surveillance that defines a measure of the health (i.e., the occurrence of a disease or other health-related event) or a factor associated with health (i.e., health status or other risk factor) among a specified population. The term "indicator" has been alternatively used to describe or evaluate public health programs and services.

Medicaid Management Information System: See Iowa Medicaid Management Information System

National Ambulatory Care Survey (NACS): The National Ambulatory Medical Care Survey (NAMCS) is a national survey designed to meet the need for objective, reliable information about the provision and use of ambulatory medical care services in the United States. Findings are based on a sample of visits to non-federally employed office-based physicians who are primarily engaged in direct patient care. Physicians in the specialties of anesthesiology, pathology, and radiology are excluded from the survey. The survey was conducted annually from 1973 to 1981, in 1985, and annually since 1989. (CDC web site)

National Asthma Survey (NAS): This survey sponsored by National Center for Environmental Health of the CDC examines health, socioeconomic, behavioral, and environmental predictors related to asthma control. It will also help to characterize the content of care and health care experiences of persons with asthma. (CDC web site)

National Center for Health Statistics (NCHS): The NCHS is the Center within CDC that is responsible for many of CDC's surveys(e.g., NHANES, NHCS, NIS, NSFG, SLAITS, NAS). NCHS also is the source for datasets .connected with these surveys and national vital records. (CDC web site)

National Health and Nutrition Examination Study (NHANES): The NHANES, first conducted in 1960 and since been completed eight times, and is designed to collect information about the health and diet of people in the U.S. including anthropomorphic measurements and in-person interviews. (CDC web site)

National Health Interview Survey (NHIS): The NHIS a national population-based household phone survey conducted continuously of a sample of the U.S. population that collects statistics on illness, including asthma, accidental injuries, disability, use of hospital, medical, dental, and other services, and other health-related topics. (CDC web site)

National Immunization Survey (NIS): The NIS is sponsored by the National Immunization Program and is a phone survey begun in 1994 to monitor childhood immunizations. The target population for the NIS is children ages 19 to 35 months. (CDC web site)

National Survey of Children's Health (NSCH): The NSCH was conducted in 2003 and provides national and state-level data on children 0-17 years with special emphasis on medical homes, family interactions, parental health, school and after-school experiences, safe neighborhoods, and pediatric care from the parent's perspective. Asthma data were collected. About 2000 children per state were surveyed. This one-time survey was conducted in 2000 and funded by the Health Resources Services Administration's Maternal and Child Health Bureau. (CDC web site)

National Survey of Early Childhood Health (NSECH): The NSECH provides national baseline data on pediatric care from the parent's perspective. Questions focus on the delivery of pediatric care to families with children under 3 years of age and health promotion in the home. More than 2000 parents were interviewed. This one-time survey was conducted in 2000 and funded by the American Academy of Pediatrics, the Maternal and Child Health Bureau and others. (CDC web site)

PEF (peak expiratory flow) home monitoring: Measurement of PEF on a regular basis at home with a portable peak flow meter. PEF home monitoring is especially useful to patients over five years of age with moderate persistent to severe persistent asthma. (CDC web site)

Performance measure: A quantitative indicator [measure] that can be used to track progress toward an objective. (Panel on Performance Measures, 1997)

Prevention: Public health efforts to intervene to before disease onset or early in the course of a disease. Primary prevention is directed to susceptible people before they develop chronic disease in order to reduce incidence. The causes of a disease must be known before primary prevention is feasible. Secondary prevention is directed toward those with disease who are asymptomatic. Secondary prevention generally does not reduce incidence but instead detects the condition at a more treatable stage. Tertiary prevention is geared toward preventing disability a quantitative indicator [measure] that can be used to track progress toward an objective. (Brownson, 1993)

Rate: The basic measure of disease occurrence that most clearly expresses the probability of risk of disease in a defined population over a specified period of time. A rate is defined as:

- Number of events
- Population at risk

Obstructive sleep apnea (OSA): An illness characterized by snoring, partial or complete cessation of breathing during sleep, reductions in blood oxygen levels, severe sleep disruptions, and excessive daytime sleepiness. OSA is a chronic breathing problem with serious effects on individual health and productivity, including an inheritable risk of sudden infant deaths, behavior and learning disturbances, injury from accidents, and reduced quality of life.

Risk factor: An agent that when present increase the probability of a disorder being expressed. There are two types of risk factors: causal (involved in developing asthma) and contributing (involved in exacerbations. (CDC web site)

Standardization: An analytic process that attempts to remove the effect of differences in a confounding variable (e.g., age) from a rate--sometimes called adjustment. (Thacker, 1988)

State Trauma Registry: Registry administered through the IDPH comprised of emergency department reports of major trauma cases, ambulance run reports, brain injury and agricultural injury reports.

State Inpatient Database: See Iowa State Inpatient Database

Surveillance: The ongoing systematic collection, analysis, and interpretation of outcome-specific data for use in planning, implementation, and evaluation of public health practice. (Thacker, 1988)

Public health surveillance must be closely linked with dissemination of these data to the appropriate audience and the application of the surveillance findings to disease prevention and control. (Brownson, 1993)

An epidemiolgical surveillance system that monitors trends in a disease is an essential part of public health prevention and control of that disease. Surveillance systems must include mortality data, prevalence data on the disease and its risk factors, as well as measures of functional status and disability. Chronic disease control cannot be effectively pursued without valid measures of incidence and prevalence, related impairments, costs and effectiveness of control measures. (Brownson, 1993)

Surveillance system: The functional capacity for collection and analysis of surveillance data, and the timely dissemination of these data to persons who can undertake effective prevention and control activities. (Thacker, 1994)

Trigger: Risk factor that causes exacerbations of asthma; a stimulus that causes an increase in asthma symptoms and/or airflow limitation. (CDC web site)

Youth Risk Behavior Survey: See Iowa Youth Risk Behavior Survey

Youth Survey: See Iowa Youth Survey

Youth Vital Records: See Iowa Youth Tobacco Survey

Vital Records: Databases of death, birth, marriage, divorce records required to be filed with the State of Iowa, Iowa Department of Public Health. (For more details, see Appendix E, Iowa Death Certificates)

Appendix G: Council of State & Territorial Epidemiologists Case Definitions for Asthma

Council of State and Territorial Epidemiologists' (CSTE)
Surveillance Case Definitions for Asthma

Confirmed asthma diagnosis:

Clinical/Laboratory Confirmed Case: Records showing any of the following three clinical symptoms at least 3 times during the past year and at least one of the laboratory criteria:

Clinical criteria:

- Wheezing for two or more days
- Chronic cough that responds to bronchodilation and persists 3 to 6 weeks in the absence of allergic rhinitis or sinusitis;
- Nocturnal awakening with dyspnea, cough, wheezing in absence of other medical conditions known to have caused these symptoms

Laboratory criteria:

- FEV_1, FVC demonstrating a 12 percent increment after the patient inhales
- 20 percent decrease in FEV_1 after a challenge by histamine, methacholine, exercise or cold air;
- 20 percent diurnal variation in peak expiratory flow over one to two weeks;

Probable asthma diagnosis:

Hospital discharge record listing asthma as the primary diagnosis (hospitalization from asthma) (ICD-9 code 493.0 – 493.9 or ICD-10 code J45-J46);

Death certificate listing asthma as the underlying cause of death (death from asthma) (ICD-9 code 493.0 – 493.9 or ICD-10 code J45-J46);

Prevalence classification: A positive response to the questions:

- "Did a doctor or other health professional ever tell you (or any household member) that you (they) had asthma?" and,
- "Do you (or the household member) still have asthma?" or,
- "Have you (or any household member taken prescription drugs for asthma (such as albuterol, inhaled steroids, cromolyn, theophyllilne, etc.) during the past year?" or,
- "Have you had a wheeze episode in the past year?"

Clinical/Laboratory records listing any one of the following criteria:

- In the absence of supporting laboratory criteria, presence of any of the clinical symptoms previously listed under confirmed diagnosis which have been reversed by the physician treatment with asthma medications and have occurred at least three times during the past year;
- In the absence of supporting clinical criteria, met at least one of the laboratory criteria during the past year;
- In the absence of supporting laboratory or clinical criteria, taken medications in the past year that were prescribed by a physician for asthma.

Possible asthma diagnosis:

Hospital or medical record listing asthma as a secondary diagnosis (hospitalization with asthma) (ICD-9 code 493.0 – 493.9 or ICD-1- code J45-J46);

Appendix G: Council of State & Territorial Epidemiologists Case Definitions for Asthma

Death certificate listing asthma as a contributing cause of death (deaths with asthma) (ICD-9 code 493.0 – 493.9 or ICD-1- code J45-J46); ICD-9 code 466 (acute bronchitis, bronchiolitis in children <12 years) ICD-9 code 491.20 or 491.21 (chronic bronchitis in children <12 years)

Prevalence classification: A positive response to the question:

- "Have you (or any household member) used over-the-counter medications for asthma during the past year?" or,
- "Have you (or any household member experienced episodes of wheezing during the past year?"

Clinical/Laboratory records listing any one of the following criteria:

- Shortness of breath
- Wheezing or chronic cough in absence of obvious respiratory infection
- Increased nasal secretion, mucosal swelling, nasal polyps or chronic sinusitis
- Hyper expansion of the thorax
- Sounds of wheezing during normal breathing
- Prolonged phase of forced exhalation
- Chest X-ray showing hyper-expansion
- FEV_1 less than 80 percent of predicted value

(Note: this clinical definition of possible asthma is not as useful with young children as adults. And, in both adults and children other causes of airway obstruction leading to wheeze exist, such as COPD, congestive heart failure, pulmonary embolism, pulmonary infiltration with eosinophilia, vocal cord dysfunction, gastroesophageal reflux, sinusitis, foreign body in small airway, etc.)

Goals and Strategies for Asthma Control: Iowa Asthma Plan and Other Plans Addressing Asthma							
Iowa Asthma Plan			**Iowa Asthma Surveillance Plan**	**Healthy Iowans 2010**		**Healthy People 2010**	
Goal 1: Providers progressive/proactive in enhancing well-being of Iowans with asthma			**All outcome indicators**	**Many chapters/ objectives**		**Many focus areas/objectives**	
Strategies		**Measures**					
1.2	Promote national asthma guidelines	# Training programs w/ info about national guidelines	--	18-4.3	Promote use of NAEPP guidelines throughout state	24.7	Increase # patients w/care consistent with NAEPP
1.1	Educate providers about early intervention	# Training programs w/early intervention curricula	--	--			--
		# Providers trained	--				
		# Unscheduled provider visits	--				
1.3	Educate providers about indoor triggers	# Training programs w/info about indoor triggers	--	--			--
		# Providers trained					
1.4	Educate providers about accurate diagnosis of asthma	% of people w/asthma diagnosed with asthma	A1.1, A1.2, A2.1, A2.1	--			--
1.5	Educate providers about/promote cultural literacy among providers	# Training programs w/info about cultural diversity	--	--			--
		# Course for providers-in-training					
1.6	Develop asthma management systems compatible with rural and urban areas	# Management systems in place in Iowa communities	--	--			--
1.7	Address barriers providers face about treatment options, referrals, reimbursement	# Providers informed	--	--			--

1.8	Educate/increase referral options for providers of underserved/uninsured/high risk populations to decrease health disparities in accuracy of diagnosis, management and health outcomes.	# Referrals from providers working with underserved to specialists	--	--		--
		# Trainings received by providers working with underserved	--			
		% Reduction in difference in services received by ethnic/racial and uninsured	--			

Goals and Strategies for Asthma Control: Iowa Asthma Plan and Other Plans Addressing Asthma							
Iowa Asthma Plan			**Iowa Asthma Surveillance Plan**	**Healthy Iowans 2010**		**Healthy People 2010**	
Goal 2: People with asthma and families are empowered, knowledgeable, taking responsibility for own health			**All outcome indicators**	**Many chapters/ objectives**		**Many focus areas/objectives**	
Strategies		**Measures**					
2.1	Increase the number of formal asthma outpatient education programs in Iowa. (Part of NAEPP guidelines)	# Outpatient programs offered	--	18-4 18-4.1 18-4.2 18-4.3	Increase # of outpatient education programs by 50% Identify existing programs Develop plan to address gaps in geographic coverage Increase use of NAEPP guidelines	24.6	Increase % patients receiving formal asthma manage-ment patient education
2.2	Educate the media about asthma	# Pieces of material sent to media	--	--			--
		# Reports in media covering asthma	--				
2.3	Media to report more about asthma, asthma resources/management	# Media reports/spots run	--	--			--
2.4	Patients/families have more access to info about indoor triggers and remediation	# Sources of information	--	--			--
		# Programs offered					

2.5	Patient/family education class available for asthma management	Course curricula developed, piloted, evaluated	--	--		--
		# Places to which course disseminated				
			--	--		--
2.6	Patient education materials culturally appropriate/appealing	# Pieces of patient education material available	--	--		--
		# Pieces reviewed for cultural appropriateness				
		# Pieces found to be culturally appropriate				
2.7	Patients/families able to access quality medical care to manage asthma	# Routine visits for asthma	B5.1, B5.2, B6.1, B6.2, B7.1, B7.2, B8.1, B8.2	--		--
		# Urgent care visits for asthma	B9.1, B9.2, B10.1, B10.2, B11.1 - B11.3, (B13.1-B15.3, hospitalizations)		24.2 24.3	Reduce hospitaliza-tions Reduce Emergency Department visits
		--	--	--	24.4	Reduce activity limitations
2.8	Patients/families able to access evidence-based programs to develop self-confidence and self-management skills	# Train-the-trainer patient education programs offered in communities	--	--		(See 24.6 above)
		# Peer-to-peer support systems				--
2.9	Annual asthma educator conference held	Conference held annually	--	--		--
2.10	All people with asthma have an asthma action plan	# Patients with asthma action plan	B5.2, B6.2	--		--

Goals and Strategies for Asthma Control: Iowa Asthma Plan and Other Plans Addressing Asthma							
Iowa Asthma Plan			**Iowa Asthma Surveillance Plan**	**Healthy Iowans 2010**		**Healthy People 2010**	
Goal 3: Community organizations will provide resources and education to Iowans about asthma and its triggers			**All outcome indicators**	**18-6 Educate/involve 40 communities in awareness about indoor/outdoor triggers**		**Many focus areas/objectives**	
Strategies		**Measures**		**Many other chapters/ objectives**			
3.1	Implement appropriate collaboratives between public and private entities	# Collaborative projects	--	18-1	Establish an asthma coalition		--
3.9	Schools encouraged to implement *CDC guide Strategies for Addressing Asthma w/I a Coordinated School Program*	# Schools adopting policies and procedures in the CDC guide	--	18-3	Establish an Open Airways program established in six areas of state	24.5	Reduce # of school or work days missed due to asthma
3.2	Educate school administrators and staff about importance of evidence-based programs in the schools	# Trainings offered to school personnel	--	18-3.1 18-3.2 18-3.3 18-3.4	Id. high preval'nc school districts Select schools Train school staff Implement program, continue staff training		--
3.3	Professional and other organizations to educate members about access to care/asthma management using culturally appropriate means	# Educational initiatives	--	--			--

Goals and Strategies for Asthma Control: Iowa Asthma Plan and Other Plans Addressing Asthma							
Iowa Asthma Plan			**Iowa Asthma Surveillance Plan**	**Healthy Iowans 2010**		**Healthy People 2010**	
Goal 3: Community organizations will provide resources and education to Iowans about asthma and its triggers			**All outcome indicators**	**18-6 Educate/involve 40 communities in awareness about indoor/outdoor triggers**		**Many focus areas/objectives**	
Strategies		**Measures**		**Many other chapters/ objectives**			
3.4	Community organizations will offer evidence-based programs to help patients/families develop confidence and asthma self-management skills	# Patients/families trained				24.6	
3.5	Community organizations will offer evidence-based programs to employers regarding workplace asthma	# Pieces of material provided # Employers reached # Workplaces improved	--	--		24.5	Reduce # of school or work days missed due to asthma
3.6	Increase community awareness of air pollution from open burning	% Public surveyed aware # Letters to the editor # Pieces of material distributed to community leaders, health professionals	D1.1 Cities and counties w/local open air burn bans	18-5 18-5.1 18-5.2 18-5.3	Increase # communities w/open air burn bans: Survey communities Develop model ordinance, measure pollution downwind, Distribute info.		--

Goals and Strategies for Asthma Control: Iowa Asthma Plan and Other Plans Addressing Asthma							
Iowa Asthma Plan			**Iowa Asthma Surveillance Plan**	**Healthy Iowans 2010**		**Healthy People 2010**	
Goal 3: Community organizations will provide resources and education to Iowans about asthma and its triggers			**All outcome indicators**	**18-6 Educate/involve 40 communities in awareness about indoor/outdoor triggers**		**Many focus areas/objectives**	
Strategies		**Measures**		**Many other chapters/ objectives**			
3.7	Community organizations educated about indoor triggers and remediation	# Presentations completed # People attending	--	18-6.1	Educate communities about indoor/outdoor triggers through fliers, community presentations, info to high risk populations		--
3.8	Educate the public about effects of second-hand smoke and how to reduce exposure	# Materials developed to educate about second-hand smoke # Activities held to educate about second-hand smoke	E3.2, E4.2 Exposure to second-hand smoke	21-2 18-6.4 21-5	Reduce exposure to second-hand smoke Encourage the pregnant not to smoke	27.9 27.13 27.6	All pertain to second-hand smoke Reduce smoking in pregnancy
3.9	(See above)						
3.10	Community organizations offering culturally appropriate programs accessible to patients/families in need of services	# Culturally appropriate materials in communities	E1.4, E2.4 Ethnicity/race as risk factor	--			--

Goals and Strategies for Asthma Control: Iowa Asthma Plan and Other Plans Addressing Asthma							
Iowa Asthma Plan			**IA Asthma Surveillance Plan**	**Healthy Iowans 2010**		**Healthy People 2010**	
Goal 4: Needs, priorities, and actions for asthma control identified in plans are evidence-based			**All outcome indicators**	**Many chapters/ objectives**		**Many focus areas/objectives**	
Strategies		**Measures**					
4.1	Establish Iowa asthma surveillance system that monitors outcomes and risk factors	# Databases analyzed: • Work-related • BRFSS • Medicaid	B19, C1, C2, C3	18-2 18-2.1 18-2.2	Establish an Iowa asthma surveillance system by 2005 Analyze BRFSS data Monitor prevalence trends	24.8	Establish asthma surveillance systems in at least 25 states
		• Iowa YRBS	A1, A2, A3, A7, B1, B5, B7, B9, B11, C3, E1, E3, E5, E7	18-2.3	Analyze data sources		
		• IYS	B3, B11, B15	18-2.4	Develop asthma surveillance plan		
		• IYTS	A2, A4, A6, A8, B2, B6, B8, B10	18-2.5	Determine validity of existing data sources		
		• Deaths	A2, A4, A6, A8, B2, B6, B8, B10	18-2.6	Analyze environmental data and prevalence		
		• Environmental data	A2, A4, A6, A8, B2, B6, B8, B10				
		• Reportable diseases data	A10	18-2.7	Monitor particulate matter/toxic exposure		
		• SID	D1	18-2.8	Relate air pollution to asthma prevalence.		
		• State Trauma Registry	C2	18-2.9	IYRBS including asthma questions		
			B13, B17-B19	18-2.10	Provide asthma data to communities		

Goals and Strategies for Asthma Control: Iowa Asthma Plan and Other Plans Addressing Asthma							
Iowa Asthma Plan			**IA Asthma Surveillance Plan**	**Healthy Iowans 2010**		**Healthy People 2010**	
Goal 4: Needs, priorities, and actions for asthma control identified in plans are evidence-based							
4.2	Routinely update the strategic plan for asthma	# Articles in published literature reviewed # National, state and local policies reviewed Plan updated	--	18-6.2	Inventory asthma urban/rural programs around state dealing with controlling triggers in high-risk populations		
4.3	Implement state asthma plan and evaluate interventions in that plan	# Objectives with those to implement identified	--	18-6.3	Evaluate asthma urban/rural programs around state dealing with controlling triggers in high-risk populations		
		# Objectives implement					
		# Evaluations of interventions completed					
4.4	Develop potential hypotheses for asthma research	# Hypotheses generated	--	--			
		# Hypotheses tested					

Goals and Strategies for Asthma Control: Iowa Asthma Plan and Other Plans Addressing Asthma								
Iowa Asthma Plan			**IA Asthma Surveillance Plan**		**Healthy Iowans 2010**		**Healthy People 2010**	
Goal 5: Public policies at all levels supporting healthy citizenry and reducing prevalence and severity of asthma in Iowa			**All outcome and risk factor indicators**		**Many chapters/ objectives**		**Many focus areas/objectives**	
Strategies		**Measures**						
5.1	Elimination of bias and discrimination that may be associated with an asthma diagnosis	% of asthma diagnosed in pediatric population	--		18-6.5	Seek funding to increase prevention activities in communities w/asthma disparities		
		State law adopted on asthma as a pre-existing condition						
5.2	Increase the number of communities w/open air burn bans to at least 50	# Communities w/open air burn bans	D1.1 Cities and counties w/local open air burn bans (also related to Iowa Asthma Plan strategy 3.6)		18-5	Increase # communities w/open air burn bans to 50 (also related to Iowa Asthma Plan strategy 3.6)		
5.3	Increase number of local, regional, and state policies that address indoor air in schools, workplace, and in public places	# Requirements/ recommendations adopted	--		Schools (see Asthma in Iowa Plan strategy 3.9)			
		# Public policy bodies addressing indoor air quality issues	--					
5.4	Increase the number of communities with smoke-free ordinances	# Smoke-free ordinances adopted						
		# Smoke-free ordinances enforced						
			A10.1	Mortality from asthma			24.1	Reduce deaths
			A10.2	Mortality with asthma				

This Iowa Asthma Surveillance Plan, October 2003 may be updated periodically. The latest version may be downloaded from the Iowa Department of Public Health, Iowa Asthma Control Program Web Site: http://www.idph.state.ia.us/hppab/asthma_content/

Also available on the Iowa Department of Public Health,
Iowa Asthma Control Program Asthma Program Web Site:
Asthma in Iowa: Surveillance Report (1995 - 2000 data), May 2003
Asthma in Iowa the Iowa Plan for Improving the Health of Iowans with Asthma (strategic plan for asthma interventions), April 2003

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